CAMBRIDGESHIRE
REGIONAL PLANNING REPORT

PREPARED FOR THE CAMBRIDGESHIRE
JOINT TOWN PLANNING COMMITTEE

BY

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WESTMINSTER, S.W.I

AND
APPROVED BY
THE JOINT TOWN PLANNING
COMMITTEE

CAMBRIDGE
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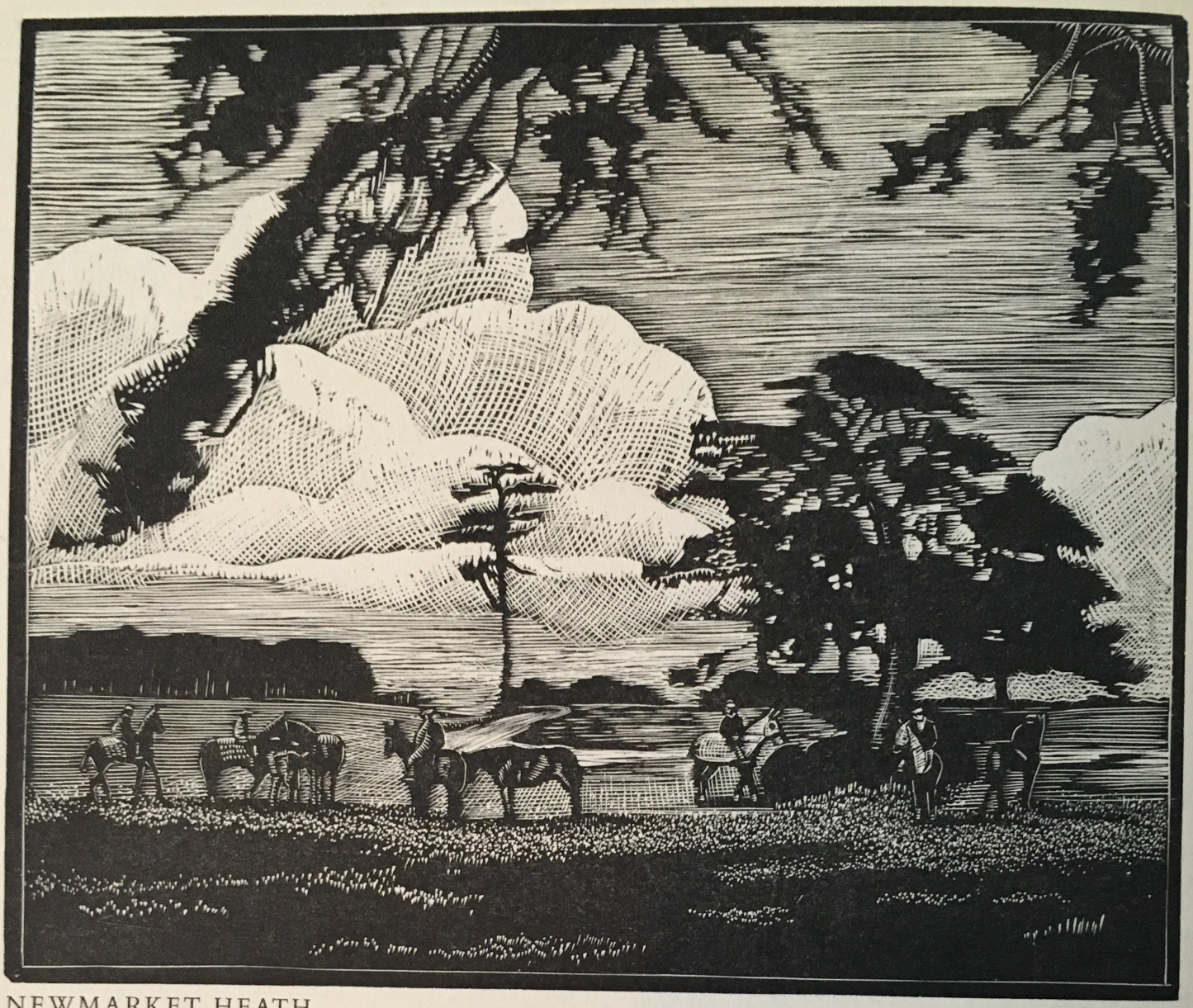
WICKEN FEN

Sylvia A. Abram



NEWMARKET HEATH

Sylvia A. Abram

FOREWORD

THE REGIONAL PLANNING COMMITTEE was set up in May 1928 to be advisory to the Cambridgeshire Joint Town Planning Committee and to make a general inquiry into the present state of the County and to emphasise its principal features with the twofold purpose of preserving its native character and providing for its proper development. Various parliamentary measures for town planning have met the immediate problems arising throughout the country from rapid growth of industrialism and increase of population; and now the Town and Country Planning Act of 1932 has conferred further powers on local authorities for dealing with present conditions. It is of supreme importance that, as further steps are taken, the advance should be on a widely outlined scheme extending from towns to villages and embracing the whole countryside. Only thus can the amenities and facilities of life be protected from the irresponsible and individual action of those who, with the best intentions, commit errors through lack of guidance.

It is in the hope that this larger outlook may secure for posterity the beauties of their inheritance that the Committee have prepared the ground for proper co-ordination between schemes for different parts of the region and have supplied information and offered advice. It has not been their function to elaborate details, or even to provide a regional scheme; but they believe that their work has made it possible for such a scheme to be more readily prepared by the several planning authorities in co-operation. They have been careful, therefore, to keep in view the broad interests of the population; and this intention was indicated at the outset in the constitution of the Committee, which contains representatives not only of the Local Authorities but also of the University of Cambridge, the Rural Community Council, and the Cambridge Preservation Society. General amenity and convenience have been the guiding principles in their researches and suggestions. In their opinion the peculiar and interesting beauty of the County can be preserved under modern conditions without any loss of those material advantages which are obtained from progressive science and social improvements; and they believe that such a project is consonant with the most recent ideas of

welfare and can actually be achieved by the allied determination of the various authorities. There must always be varying local interests, but there is also a common cause which binds them together; and where the natural and historical features of a whole region are proudly preserved, and ugliness and congestion and squalor are repelled or banished, every separate community within that region is happier and more prosperous. The Cambridge Preservation Society have made familiar certain principles which may secure the lasting attraction of our great University town; and it seems that similar principles should govern the whole system of rural life in the County.

This Report is presented to the various bodies responsible for town and country planning in the hope that the work of the Committee will be found useful, and that it will be possible for these bodies to make a regional scheme largely based on the suggested lines. In many ways our County has so far been fortunate, and has escaped disfigurements which others have suffered. We are yet in time to prevent those evils which, as we know, are so often foreseen but never cured; and the dream of a Cambridgeshire for ever beautiful is one which it is worth united and unselfish action to realise.

A. B. RAMSAY

ACKNOWLEDGMENTS

THE JOINT TOWN PLANNING COMMITTEE desire to express their recognition of the help received from the various authorities and individuals who by the supply of information have contributed to the general survey.

The River Great Ouse Catchment Board; the County Education Committee; the Cambridge Preservation Society and the various public service undertakings have all given the benefit of their specialised knowledge.

The Committee also offer their particular thanks to their Chairman, Dr Alexander Wood; the Clerk of the County Council, Mr Ashley Tabrum, who has also acted as their Honorary Secretary; the County Surveyor, Mr A. E. Peake; and Mr G. W. Teasdale, the Borough Surveyor.

They have also to acknowledge the courtesy of *The Times* and Mr L. D. Pratt in supplying a number of the photographs used as illustrations in the Report.

The Diagrams and Maps are based upon the Ordnance Survey by the kind permission of the Ministry of Agriculture and Fisheries and the Controller of H.M. Stationery Office.

CONSTITUTION OF THE JOINT TOWN PLANNING COMMITTEE

REPRESENTATIVES

CAMBRIDGESHIRE COUNTY COUNCIL

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S. G. Howard, Esq.
W. C. Jackson, Esq.
L. Tebbutt, Esq.

CAMBRIDGE BOROUGH COUNCIL

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E. W. Amies, Esq.
E. O. Brown, Esq.
J. F. Cameron, Esq.
J. S. Conder, Esq.
W. L. Raynes, Esq.
R. Starr, Esq.
Alex. Wood, Esq. (*Chairman of the Committee*).

CAXTON AND ARRINGTON RURAL DISTRICT COUNCIL

Miss C. A. Cochrane.
Sir Charles Wentworth Stanley.

CHESTERTON RURAL DISTRICT COUNCIL

W. D. F. Davey, Esq.
H. E. Foster, Esq.
Miss H. C. Greene.
J. M. Taylor, Esq.

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R. Mailer, Esq.

UNIVERSITY OF CAMBRIDGE

C. Forster-Cooper, Esq.
B. L. Manning, Esq.

CAMBRIDGESHIRE RURAL COMMUNITY COUNCIL

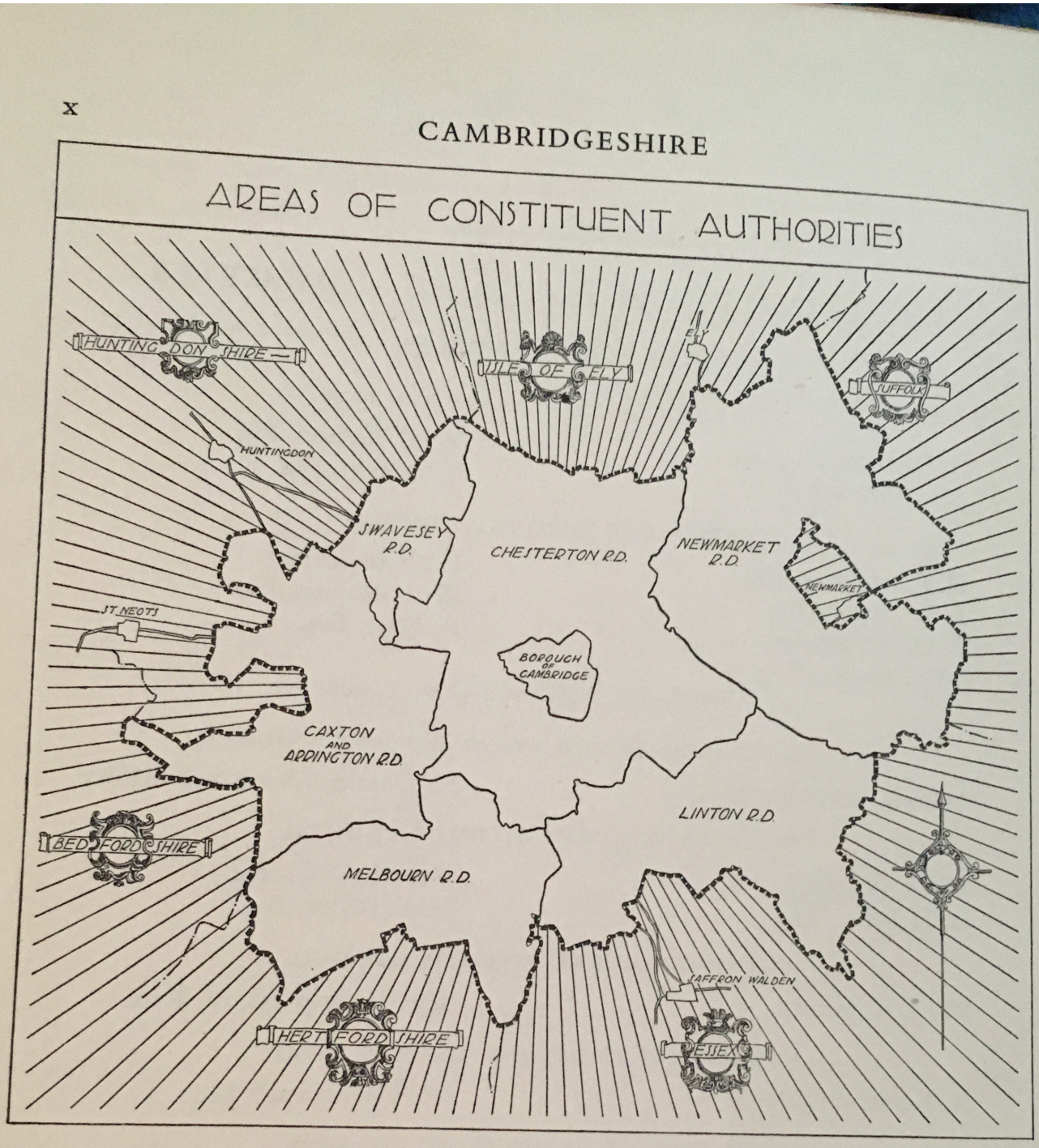
H. C. Hughes, Esq.
W. W. Pemberton, Esq.

CAMBRIDGE PRESERVATION SOCIETY

A. B. Ramsay, Esq.

Ashley Tabrum, Esq., O.B.E., LL.M. (*Hon. Secretary to the Committee*).

The Committee have also had the advantage of the assistance of the Officers of Local Authorities throughout the preparation of the Report.



The functions of the Committee are as follows:

(*a*) To investigate the conditions and resources of the Region.

(*b*) To prepare in broad outline a Regional Plan.

(*c*) To advise in the promotion, co-ordination and linking-up of Planning Schemes.

(*d*) To consider and make suggestions or recommendations on any matter relating to effective town or regional planning or development, or upon any other matter which may be referred to it.

(*e*) To make suggestions and recommendations to any Government Department or Local Authority on any matter coming within the scope of the Committee's activity.

On the 30th November, 1928, Mr W. R. Davidge was appointed as Town Planning Consultant to advise the Committee and to prepare a report for the Region.

For the purpose of giving detailed consideration to the main subjects under review, five Sub-Committees were formed to collaborate with Mr Davidge in the preparation of the Report.

(*a*) ROADS

The Chairman of the Committee (Alex. Wood, Esq.)

E. W. Amies, Esq.
J. F. Cameron, Esq.
S. G. Howard, Esq.
W. C. Jackson, Esq.
R. Mailer, Esq.
W. W. Pemberton, Esq.
R. Starr, Esq.
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G. F. Townsend, Esq.

(*b*) ZONING AND OPEN SPACES

The Chairman of the Committee (Alex. Wood, Esq.)

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A. R. Fordham, Esq.
H. E. Foster, Esq.
H. C. Hughes, Esq.
A. B. Ramsay, Esq.
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L. Tebbutt, Esq.

(*c*) CONTROL OF DEVELOPMENT

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A. R. Fordham, Esq.
Miss H. C. Greene.
H. C. Hughes, Esq.
W. L. Raynes, Esq.
J. M. Taylor, Esq.

(*d*) CO-ORDINATION

The Chairman of the Committee (Alex. Wood, Esq.)

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W. D. F. Davey, Esq.
H. E. Foster, Esq.
W. C. Jackson, Esq.
A. B. Ramsay, Esq.
Sir C. W. Stanley.
L. Tebbutt, Esq.

(*e*) PREPARATION AND PUBLICATION OF REPORT

The Chairman of the Committee (Alex. Wood, Esq.)

W. D. F. Davey, Esq.
C. Forster-Cooper, Esq.
H. C. Hughes, Esq.
A. B. Ramsay, Esq.
W. L. Raynes, Esq.
L. Tebbutt, Esq.

The recommendations contained in this Report, illustrated on the accompanying Maps, are presented as a basis for the Local Town Planning Schemes of the constituent Authorities.

The Joint Town Planning Committee, after consideration of the Report, passed the following resolutions at a meeting held on the 17th May, 1933:

1. That the Report submitted by the Consultant be generally approved.
2. That two copies of the Report be forwarded to each of the constituent Town Planning Authorities and that their attention be called to the desirability of proceeding with the preparation of a Town Planning Scheme.
3. That to avoid the multiplicity of schemes Authorities should consider working in co-operation as far as possible or through a Joint Committee invested with Town Planning powers.
4. That this Report should form the basis of all schemes which should provide for future development in the County on the lines of the general principles contained in the Report.

The constitution of the Committee set out on page ix is of the Committee as originally appointed in 1928. On the 1st April, 1934, the areas of the constituent authorities were changed. The Borough of Cambridge has been enlarged, the Swavesey Rural District and part of Caxton and Arrington Rural District have been joined to Chesterton Rural District, and a new Rural District has been formed consisting of the Linton Rural District, the Melbourn Rural District, and the remainder of Caxton and Arrington Rural District.

A diagram of the new Districts appears on page 123.

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FOWLMERE VILLAGE

Sylvia A. Abram

CHAPTER I

GEOGRAPHIC CHARACTER—TOPOGRAPHICAL ARCHAEOLOGICAL—GEOLOGICAL FORMATIONS LAND UTILISATION—FORESTRY

Opening Note

IN THE region of Cambridgeshire, which owes its attractiveness to its exceptional individual character, development has in the main concentrated in one centre, so that this is a region unique in itself, with one important town and a widespread system of villages. The Borough of Cambridge is the centre of gravity of a wide country area. All but four of the main roads through the region lead into it, the principal river flows through it, and for an average distance of fifteen miles no other town has formed, though in between the traffic routes of the main highways villages are plentiful, laced together by a network of secondary roads.

Cambridgeshire is therefore essentially a region where satellite development has an open field, the road system, providing regular lines of radiation from the main centre of activity, being admirably constructed to further development of this character.

The physical and geological characteristics of the land have for many centuries influenced development in this direction, promoting small colonies of population on appropriate sites amidst a wide field of fertile plain or upland which is still deeply rural and generally undisturbed.

Though naturally open and spreading to view, this countryside harbours its villages with a sheltering grace, only the enfolding trees, the church towers and wind-mills making the observer aware of the presence of a village.

GEOGRAPHIC CHARACTER

The contrast between the plain and the upland, dividing the region into two sections roughly on the boundary of the 50 ft. contour line, is one of the most interesting features of the landscape, and is a fundamental factor governing both the past and the future development of the region.

The two sections, the Fens and Uplands, must necessarily be considered as separate units, for their diversity has led to three differing types of development:

(1) Over the plain or fen area.
(2) Over the uplands.
(3) Along the line of merger.

The essential differences are expressed later under the heading "Location of Development"; meanwhile reference is made to the characteristics of the two geographical divisions.

The Fens

Origin of the Fens

The fens are given precedence, not because they are of greater geographic importance in framing development, but because of the fact that they are more unique and have cost the past so much in endeavour that they may be said to represent the soul of the region. In character the fens are as flat as any land surface in the country, and they are for the most part drained and reclaimed from being a natural marshy waste, originally part of a bay in the North Sea.

In the desert of reed-grown marsh and watery swamp, which was the natural state of the fen-land, occurred patches of land rather higher and therefore drier than the surrounding land. On these islands people first settled, and their importance as sites for development is evident to-day. It was from these sanctuaries that men first began to extend a control over the wide levels and meres which has resulted in the conversion of the fen waste into an area noted for its fertility throughout the country.

The following extract gives a clear impression of all that the region possesses in its share of the fen district:

> This great level tract, the largest plain in Britain, is interesting by reason of its magnitude, its almost unbroken flatness and its fertility: because within its bounds important historical and political events have transpired, far-famed institutions of a by-gone age have flourished and decayed, and because through many ages it has demanded the most strenuous energies of the sturdy men of yore, and in these later times has taxed all the powers and genius of experienced engineers to secure it from the inroads of the watery element....
>
> Labour, skill, resolution, capital—these have made the Great Fen what it is to-day—the Golden Plain of England. (*The Fenland Past and Present.*)

For these reasons every effort should be made to ensure that the trend of future development shall not undo or minimise the accumulated work of

the previous ages, and that the productive value of this great area shall not be allowed to go to waste.

Part of the plan of regional development must therefore be to retain these

areas for the future as intact as possible, for in the even levels there is not only a source of productive supply, but a serene charm provided by the extreme simplicity of the landscape—wide cultivated fields seamed by the sky-reflecting water-courses, edged with green ribbons of grass and sometimes fringed with water-loving trees.

The Uplands

Character of the Uplands

By contrast to the fen-lands, the uplands in the south form a different world, a well-drained area of changing hill and valley. Yet there is a spaciousness about them which is akin to that pervading the fens, the spaciousness that provides the wide skies and freedom of vision that endears such country to us.

The rivers have had much influence on the topography of these southern districts. They have cut valleys into the hills, broad when running parallel to the outcrop, and narrower and steeper when traversing the chalk strata. In the early days it is supposed that both the floors of the valleys and the ridges of the uplands were well wooded, and traces of such woodlands still exist. The chalk escarpment between was originally open grassy land, but most of this has since been ploughed, and it is only in such places as Newmarket Heath and Royston Heath that the true downland character of this area is still apparent.

Now the valleys are filled with rich grazing meadows, the hills are largely under cultivation and the oak forests are cleared, so the change from the wild state in the uplands is as complete as in the fens. We are left, however, with two clearly defined remnants of original country—Newmarket Heath and Wicken Fen—both of which are fortunately likely to be permanent.

The Rivers

Action of the Rivers

The region drains northward to the Wash, and its rivers, the Cam, with its two branches the Granta and the Bourn Brook, the Lark and the Ouse, have all had much to do with shaping the physical character of the region. Their effect is most conspicuous on the plains, where artificial channels and embankments have of necessity been constructed to relieve the land of the ill effects of the slow circulation of the rivers.

J. F. A.

The Uplands

L. D. Pratt

The Fens

Across this area the action of the rivers has been destructive rather than constructive. They have not participated in the building up of the fen-lands; this has been done principally by the tidal currents of the North Sea carrying in debris, and not generally by the rivers spreading silt from the adjoining uplands. The mud they have brought down has been deposited in the river beds, until now these are often higher than the surrounding land.

The natural effect of the action of the rivers has been emphasised by the fact that, as the land has been drained of surplus water, it has shrunk away, and now the rivers and canals are well above soil level, contained by earth banks 10 to 20 ft. high running miles across country.

TOPOGRAPHICAL

Scenic Values

It will be evident from the above that the scenic value of Cambridgeshire is largely dependent on the general unbroken spaciousness of the landscape, and that much interest attaches to relatively small features, such as the tree-fringed lodes on the fens and the lines of standard trees forming shelter belts on the wind-swept uplands. Neither of these in any ordinarily picturesque country would be more than incidental details, whereas here they are prominent in the scene. There are, however, certain stretches of country which are more than usually outstanding, and by contrast to the general scene they assume a special significance.

These undoubtedly form the sections of landscape which should be secured as reservations, as suggested in the section dealing with the regional plan. At the same time it is of considerable importance that protective powers should be adopted to cover all the smaller features, among which are the fine remnants of early occupation.

ARCHAEOLOGICAL

The Dykes

Perhaps the most arresting of the objects of archaeological interest are the Cambridgeshire Dykes. The long regular line of the earthworks heaped up above a deep fosse, running direct and unwavering across the open country into the far distance, represents an effort of such size and scale as to compel

interest, and it is clear that if anything were done to impair their grandeur it would mean irreparable damage. The Dykes are five in number:

(1) Bran or Heydon Ditch, the outermost.
(2) Brent Ditch, the weakest line of defence.
(3) Devil's Dyke.
(4) Fleam Dyke.
(5) The Black Ditches, the final line.

It is generally assumed that as a whole the construction of these old defences covered a considerable period of time, and that different races probably had a share in the work, thus accounting for the variations in the strength of defences. They were constructed at a time when the fens were quite impassable, the river valleys morasses, and the clayey heights covered with forest, to span the area from forest to fen and prevent access to Norfolk from the south-west. It is not known with any certainty when these works were undertaken, but it is generally accepted that they are pre-Roman with the exception of Fleam Dyke, which is Roman or post-Roman. They are therefore a most remarkable survival and an asset to the region deserving of protection in perpetuity.

Equally interesting are the old hill fortresses:

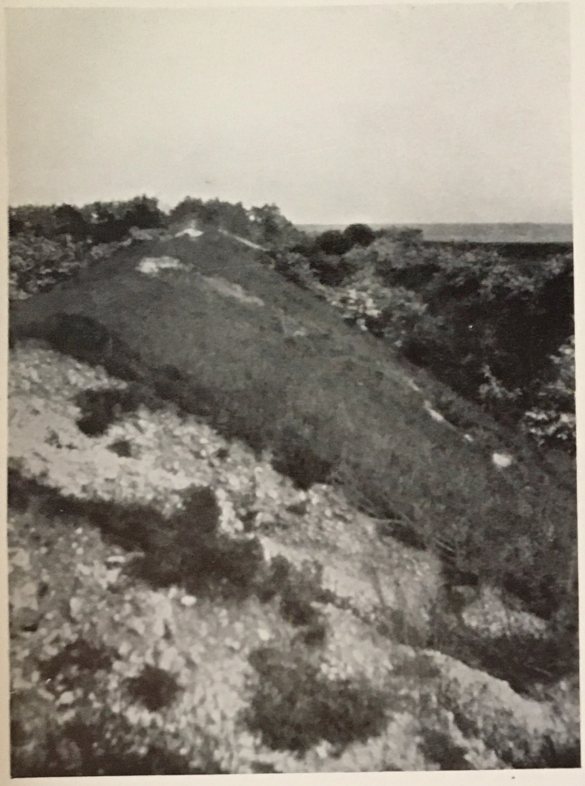
(1) Vandlebury at Stapleford;
(2) Ring Hill at Littlebury;

and on lower levels:

(3) Arbury at Histon;
(4) Belsars Hill at Willingham;
(5) Round Moats at Fowlmere.

Ancient Sites

None of the hill camps are considered to be of earlier date than the early Iron Age, but they are probably older than those on lower ground, being built by the earlier settlers on the open downs, which were a suitable environment for a pastoral people before they were strong enough to descend to the valleys and develop a settled agricultural system by clearing the marsh and forests. In them is an interesting record of the beginnings of development in the region.



Vallum of Fleam Dyke

The Devil's Dyke

L. D. Pratt

End of Fleam Dyke at Shardelow's Well

The Roman occupation is evidenced on the following sites:

Chesterford, a fortified town.
Cambridge, a fortified town.
Grantchester, rectangular earthwork.
Melbourn, rectangular earthwork.
Cambridge Station, earthwork.
War Ditches, Cherry Hinton, an important Romano-British settlement.
Carr Dyke, a canal.
Reach Lode, a canal.

Early Highways

A very complete system of Roman roads also existed. Ermine Street, one of the most important highways in Britain, linked the area with the continent via London and with the north via Lincoln. Branching off Ermine Street at Wimpole in a north-easterly direction was Akeman Street.

In the centre of the County, the well-known Via Devana crosses Cambridgeshire from south-east to north-west, joining Ermine Street at Godmanchester. These linked up with the pre-Roman roads and formed the old main thoroughfares of communication.

The remnants of Anglo-Saxon occupation are less apparent than those of the Iron Age and Roman times, and have not left traces so clearly defined as these wonderful highways.

The ancient highways, dating from remote periods, have an interesting significance. All are not in present-day use as traffic highways, but the routes of those that are not are of sufficient interest to be saved from obliteration, while those that are still in use should be protected from poor and unsatisfactory development. These ancient ways vary considerably in character, and examples of the following outstanding types are represented:

Ridgeways, following the crest line of the hills and made by early people who occupied the bare areas.

Hillside ways, sited above the spring line, which mark the period when the hill people began to leave the upland and form new settlements.

Valley routes, usually of later date.

Engineered and metalled roads, dating from the Roman period.

The alignment of the old roads was generally determined by the river crossings, and was influenced by the nature of the soil, as in the case of the

Icknield Way, which follows the line of the open hills below the summits, as these were clay capped. The most important pre-Roman Ways in the region are:

(1) The Icknield Way, running east and west across the southern area—the earlier type.
(2) Ashwell Street and Street Way, forming one system parallel to the Icknield Way—partly pre-Roman and partly Roman.
(3) Mare Way—partly a true ridgeway and prehistoric.

Historic Houses

As in all the English counties there are in the region many perfect examples of country seats. Here they seem to have an added value, as the planting and lay-out of the parks is a rich contrast to the sparsely wooded character of the region as a whole. Wimpole Park and Chippenham Park, with their fine long avenues, are the outstanding features of the localities in which they are situated; but the extent to which these private parks add beauty to the amenities is probably best illustrated at Madingley.

GEOLOGICAL FORMATIONS

General System

The broad geological formations of the region, which are naturally the basis of its character, are simple and clearly marked. In the south and south-east the low uplands are formed of chalk, the fen-land is alluvial and the western

Chalk

area is clay, greensand and gault. On the crests of the chalk hills are layers of a glacial deposit of boulder clay, as also on the high ground to the west of the Cam valley. The trend of the chalk formation is by a long gradual slope towards the south-east, and the chalk extends generally across the central area between the 50 ft. and 300 ft. contours.

Oxford Clay
Kimmeridge Clay
Lower Greensand

The irregular strip of elevated flat ground stretching by Conington and Fen Drayton to Willingham and Rampton is formed of Jurassic Oxford clay. A narrow strip of Kimmeridge clay occupies the area by Papworth St Agnes, Oakington and Cottenham. Above this comes the Lower Greensand, generally sandy, but in places hardened into "Carstone", which has been used internally for building-stone. This formation is most prevalent in the south-west, extending from the boundary by Gamlingay to Caxton and Cottenham.

Chalk formation

L. D. Pratt

Kimmeridge Clay

A broad band of gault, four to six miles wide, follows roughly parallel to the course of the River Cam, from Guilden Morden through Cambridge to Soham. It is a stiff blue clay 200 ft. thick in the south-west, thinning as it goes eastward. At the foot of the chalk is a belt of chalk marl with a layer of Cambridge Greensand at its base, which is largely worked for phosphatic nodules and cement. Gravels are found on some of the chalk hills and following the courses of the rivers. The fen beds are marly silt with extensive peat beds and buried forests, and below this a gravel layer of marine origin.

Gault

Chalk Marl

Gravels

Marly Silt

LAND UTILISATION

This considerable variation in the soils has largely affected both the present land utilisation and the original natural vegetation, which occurs in four belts:

(1) On the alluvial soil of the fens, producing rushes, sedges and water-liking plants, now given way to pasture, market-garden produce and crops.
(2) On the chalk, which is grass covered, with hangers of beech and coniferous trees, and is least changed.
(3) On the high boulder clay, where oak, elm and ash trees flourished until largely cleared to make way for arable cultivation.
(4) On the gault, where grass-land is plentiful.

Cultivation

On the whole the region is more intensively cultivated than any other county in England, having generally a higher percentage of cultivated land. On the rich soil of the fens, large herds of cattle are supported on the water meadows, and the principal crops are wheat and potatoes. Oats and small fruit are also extensively cultivated.

On the boulder clay to the east and west of Cambridge there is good wheat-land and this is still the chief crop. On the uplands generally, however, there is more barley grown, and flocks of sheep replace the cattle, the dry downs being ideal for sheep-farming. These variations in farming give to different areas a distinct individuality.

On the borders of the Isle of Ely plough-lands and hedgeless fields, devoid of standard trees, predominate both over the levels and over the sudden isolated hills that rise to 50 ft. or 100 ft. Along the rivers the grass-land spreads in unbroken tracts; and towards Willingham and Histon, on the rather dryer land, fruit-farming is developed.

Fruit-farming

Westward of the Via Devana the character of the land is entirely different, the ground is undulating and covered with pasture, tracts of woodland and plantations, till on the Huntingdon and Bedfordshire borders arable farming with varied crops is again predominant on the gold-brown farm-land, and the woods are thicker than in any other part of the region. This continues south to the Tadlow–Barton Road, which runs along the northern edge of the valley of the River Cam or Rhee. Fruit-farming is established at Kingston, Hardwick and in the Eversden district.

The land in the wide river valley is generally level and low; much of it is grass-land, particularly near the river, and this area, long known as the "Dairies", is almost wholly appropriated to dairy-farming. The arable cultivation is reminiscent of the fens, and fruit-farming is again extensive, especially in the locality of Melbourn. Right across the south-east, on the uplands, mixed farming is general, and the rolling ridges are crowned with hangers and plantations.

In the Newmarket district the farming is influenced by racing. In the last few years an increasing amount of land has been given over to stud farms, and the shelter belts planted round the paddocks and grazing lands are a feature of the area.

The stretches of grass-land with widespread plantations give the area round Newmarket a park-like aspect, especially to the east, and here the country is as beautiful as any part of the County.

Condition of Agriculture

The position of agriculture does not generally appear to be much changed, though on the heavy clay land of the Caxton and Arrington district much arable land is going out of cultivation and the position of agriculture is serious. In the Newmarket district a stimulus has been given to farming by the introduction of sugar beet; a great deal is grown in this area, and a large factory is established east of Ely.

The other fluctuations in the industry, which is the most important in the region, are indicated by the following tables:

The Times

Arable land—Bourn

L. D. Pratt

Water Meadows—River Cam

I. *Showing the Decline in Agricultural Holdings*

A drop is recorded in all classes:

	1928	1929	1931	1932	Decline
Above 1 and not exceeding 5 acres	1028	1006	932	942	86
„ 5 „ „ 20 „	862	831	814	804	58
„ 20 „ „ 50 „	658	641	603	592	66
Total agricultural holdings	2548	2478	2349	2338	210

II. *Showing the Changes in Cultivation*

1928	1929	1931	1932	
265,712	264,174	262,031	261,712	=4,000 acres less under crops and grass
207,796	205,848	200,141	198,104	=9,692 „ „ arable cultivation
16,806	17,048	21,232	20,436	=3,630 acres more under grass for hay
41,110	41,278	40,658	43,172	=2,062 „ „ grass for grazing
6,770	7,359	8,486	8,736	=1,966 „ „ rough grazing

In common with other parts of the country, arable land is giving way to grass-land and agriculture is showing a decline.

FORESTRY

Woodlands

As has already been observed, the areas where woodlands are most prevalent are the north-west and the south-east, but on the whole the region is sparsely wooded. The total area of woodland, made up as shown in the table below, does not amount to more than 1 per cent. of the whole area. This figure is lower than in any other county in England with the exception of Middlesex which, having ·9 per cent., runs Cambridgeshire very close.

Schedule of Woodlands in the Region

Conifers	506 acres
Hardwoods	896 „
Mixed	1125 „
	2527 „ of high forest

Representing 45·6 per cent. of the total woodland

Other woods .. .. 3018 acres

The grand total of 5545 shows a decrease on the returns for 1913 of 1255 acres.

CHAPTER II

LOCATION OF DEVELOPMENT—DRAINAGE POPULATION AND OCCUPATIONS—PUBLIC SERVICES EDUCATIONAL FACILITIES—COMMUNICATIONS

LOCATION OF DEVELOPMENT

Distribution of Population

THE distribution of population in the region is notably dependent on the nature of the soil. Apart from the Borough of Cambridge, the geographical centre of the region, and Newmarket, which although administratively in the County of Suffolk is almost entirely surrounded by Newmarket Rural District in the County of Cambridge, there are no centres of population that could properly be described as towns. The system of villages is, however, widespread, though the distribution is by no means uniform.

A conspicuous stretch of country, approximately twelve miles long and four wide, extending south-west from Newmarket and returning north-west almost to Cambridge, is devoid of villages. This means that about fifty square miles of land are without any centres of development, almost solely owing to the absence of streams and the difficulty of obtaining water supplies. It is unlikely that this condition will change unless artificial supplies are provided as part of a comprehensive plan, and it is a significant example of the influence of public supplies on the location of development.

CAMBRIDGE

The old town originated in the particular position it occupies owing to the junction of a natural water communication from the sea to the north, with a natural line of land communication between the east and midlands of England running between the unreclaimed, desolate and impenetrable fens on the one hand and the deep forest, clothing the uplands, on the other.

The Roman Via Devana passed by the early settlement, leading direct to Colchester, and later the castle was built by William the Conqueror as a stronghold against Hereward the Wake. Then in the Middle Ages the fact

of a bridge crossing being afforded, and the establishing of Stourbridge fair at Barnwell, made the town one of the most extensive trading centres in the country up to the eighteenth century, when the fair was considered to be one of the largest in Europe, much trade being done in wool, hops and leather.

The town grew by reason of the fact that inexhaustible supplies of the necessities of life could be carried to it from the surrounding country along the channel of the river to the wharves, which lay principally where the "Backs" are now. Trade also came to the town by this means of communication from the continent through the Port of Lynn. Within living memory long trains of barges arrived almost daily from Lynn, and the wharves round the Mill Pool and Great Bridge were busy with the activities of loading and unloading.

It is supposed that the University developed from the religious houses which were founded between 1092 and 1224, for the town was first recognised as a centre of learning in 1231. From that time on, the University has been a force in the town, keeping Cambridge alive when trade declined, and providing to-day a *raison d'être* that still dominates the encroaching industrial developments as obviously as the towers and façades of the college buildings ascend above the commercial buildings.

Control of Development in Cambridge

The making of provisions which will guarantee that this supremacy will be maintained is probably the largest issue in framing the planning scheme for the region, by securing a proper separation of buildings of varying character into limited and specific zones, by controlling the height, elevations and materials of the buildings that are to be incorporated in the town, and by reserving open land from which the quiet beauty of the college buildings may for all time be seen and enjoyed.

From the foregoing it will be appreciated that the main factors in the development of the town so far have been:

(1) The natural strategic position it occupied.
(2) The establishing of a military centre.
(3) The development of Stourbridge fair.
(4) The founding of religious houses.
(5) The evolution of the University.
(6) The development of industrial undertakings.

As far as can be foreseen, it is probable that further development will be brought about by the following:

(1) The continued growth of the University.
(2) The enlargement of commercial business to meet demands.
(3) The establishing of further works and industrial undertakings, and the extension of existing industries such as cement works.
(4) The improvement of all forms of transit, including provision for air traffic.
(5) The natural increase of population and possible influx from the rural areas.

The probable effect of all these must therefore be measured as nearly as possible in order that suitable provision may be made for them without causing detriment to the unique character of the town.

THE VILLAGES

With the villages the problem is not only one of controlling the extent of new development, but also preventing their decay and alteration of character. Since in this region the 50 ft. contour is a dividing line between the two main land classifications of fen and upland, it is significant in determining the location and types of the village settlements, particularly as it is intimately associated with the sources of streams. Above the 50 ft. line is a relatively streamless area, but below it are the fens covered with water-courses.

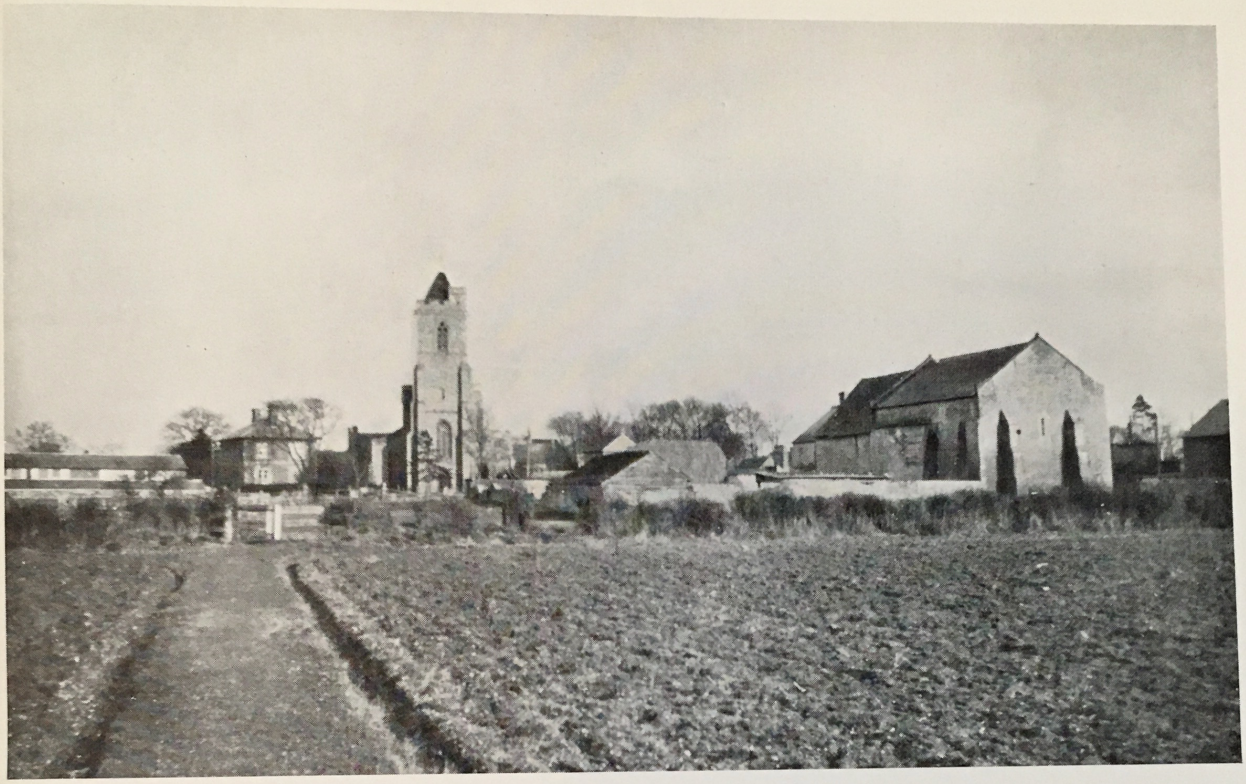
The villages as they have so far developed fall into four classifications:

(*a*) Fen villages.
(*b*) Fen-line villages.
(*c*) Valley villages.
(*d*) Upland villages.

Fen Villages

Almost without exception these are of necessity situated on islands of land slightly above the general level of the neighbouring land, chiefly formed of patches of clay or gravel occurring in the areas of sea-borne silt and peat.

The form of the fen villages is generally compact, as they are limited and controlled by the necessity to be on raised ground, which ensures a firm foundation and a fairly well-drained surface. All round the village site the land is intersected with drains, along which trees are often established, but



J. F. A.

A Fen Village—Isleham

The Times

Cambridge—looking South-east

otherwise there are no woodlands except the frequent orchards, the effect being unusually bare for pastoral English villages.

The cottage buildings are mainly plaster and wattle, for the fens produce no local materials for the purpose of the builder.

Examples: Isleham, Soham, Cottenham, Over, Fen Ditton.

Fen-Line Villages

On the 50 ft. contour, described as the fen-line, a remarkable number of villages developed originally for reasons which will be apparent. Just below them the land was marshy, full of streams and meres covered with long reeds, a habitat for fish and wild fowl, which provided abundant accessible food for the villagers. Above them, towards the uplands, the land was dry, well drained and grass covered, while from the foot of the higher land good springs welled. These considerations combined to create very suitable positions for a settlement.

These villages share with the fen villages the characteristic of being compact, as they occupy positions at the foot of the slope up to a higher ground, with the fen-land before them. The backbone of the villages runs in close association with the curve of the contours, and again the cottages are mostly whitewashed, though with roofs of thatch, and are dominated often by a wind-mill on the high ground above.

The gardens contain fruit trees, and trees grow along the roadsides, so that these villages are comparatively devoid of bareness.

Examples: Fulbourn, Great Wilbraham, Swaffham Prior, Burwell.

Valley Villages

Also down on the lower levels, closely related to the rivers, a group of villages has formed, generally on the slightly rising ground reasonably safe from floods and near a point on the river where a gravel bed allowed for fording.

It is characteristic of the valley villages that they mainly follow one long street, built on either side, leading from the river over the higher ground. The buildings are not grouped together round an obvious centre, but run with the street in the easiest ascent of the ground. A mill on the stream is a very general feature.

Examples: Linton, Whittlesford, Sawston, Shelford, Grantchester.

Upland Villages

The upland villages follow the 300 ft. contour almost as faithfully as the fen-line villages do the 50 ft. contour. They are generally sited on the boulder clay of the hill crests, leaving the belt of dry chalk villageless.

In common with the valley villages they follow the line of the main road on which they are located, and are strictly examples of ribbon development in a natural form, for which the original wooded character of the backland is probably largely responsible. Flint-built cottages and churches are quite a feature of these villages, as supplies were readily obtained from the upper chalk.

Examples: Hatley, Horseheath, Weston Colville, Burrough Green.

It is evident from the foregoing that development in the past has been strictly regulated and controlled by natural geographical restrictions, with results that give individuality and interest to the development of the region. The time has already gone by when it was essential to locate development in the vicinity of a ford, but even now in this region, which is so essentially rural, development cannot easily dissociate itself from the natural supplies of water from springs, water-courses and wells, or detach itself entirely from the necessity of selecting sites where there is some natural drainage. This fact should greatly assist in keeping development in sociable, defined groups.

DRAINAGE

The region is as it appears to-day largely on account of the influence of drainage considerations. The two aspects of the problem—surface-water disposal and provision for the sewage disposal of populated centres—are both distinct and vital.

SURFACE WATER

Water Supplies

From the beginning, the high areas of boulder clay provided a reasonably well-drained area for settlement, where the slow percolation allowed the rains to collect and lie in the hollows, ensuring a fairly constant permanent water supply for development. On the chalk slope the rains are carried off so rapidly that the area is practically waterless, unless deep wells are sunk, and therefore this area has, up to the present, been uninhabitable. At the foot of the chalk slope, however, water is plentiful from the springs that break through. The land just above the spring line has therefore always been a suitable site for development.

On the level of the fens the problem of drainage is rather a different matter. The land naturally is soaked with water, and the provision of a

J. F. A.

Flood Water—River Ouse

L. D.Pratt

The River Cam

scheme of drainage to make economic use of the soil has been a very big undertaking. The excess of water is due to two causes:

(1) The overflowing, after heavy rains, of the rivers that drain through the area.

(2) The level of the land being so low and flat as to have no natural fall.

Land Dr

To prevent extensive floods the rivers have been embanked to allow for flood waters being kept in the channels, and drains have been cut into which the local rains collect. As the system of drains is extended, leading towards the rivers, the ditches are constructed slightly higher and are made generally wider till the water pumped from the lower ditches reaches the rivers through sluice gates. This area has therefore never been one where development could be general.

For a considerable period drainage works have been organised. The Bedford Level Corporation initiated all drainage schemes for the Great Ouse valley, and the area they dealt with was divided into the North Level, Middle Level and South Level. The narrowness of the river at Earith led to the surplus water dividing into several streams over a wide area. To improve conditions, the two Bedford rivers were cut and the land which lies in between, known as "The Wash", is allowed to form a reservoir. The magnitude of the original drainage works in the fens is remarkable, and proves the value of undertaking works on a large and comprehensive scale at the outset.

Flood-la

Certain areas of land in the vicinity of the river at Soham and at Isleham are liable to flood during the winter, and there is this tendency in other parishes along the course of the River Cam, both here in the north-east and also in the south-west in the upper reaches of the Cam or Rhee between Whaddon and Barrington.

SOIL WATER

Main D

The position with regard to main drainage is set out in the County Medical Officer's Report for 1925, as follows:

> Apart from the Cambridge Sewage Works the only works are those of the Histon factory in Chesterton Rural District, the installation in the Linton Rural District at the R.A.F. Station near Duxford, and small works at Sawston.
>
> In the larger villages throughout the rural area it is common for house drains to communicate with the surface-water drains and thus discharge into streams.

Drainage Schemes

With the exception of the Borough area, there is therefore no comprehensive system of drainage in the villages as a whole. What facilities there are are provided by pipe drains receiving drainage from a group of houses, and either discharging into settling beds outside the village or into watercourses without any previous treatment of the effluent. This is a distinct drawback to the establishing of new development, whether residential or commercial, and a proper scheme is needed for the gradual sewering of areas.

Difficulty is likely to be experienced in designing a scheme on the fens owing to the low-lying character of the ground and the absence of fall, but it is a matter that needs to be considered before plans for development are generally approved.

There is a possibility that the disused water-mills with water-wheels cause a good deal of obstruction to the flow of water, thus to some extent affecting the efficient drainage of the fens. This is a matter requiring careful investigation, as there would be no purpose in demolishing mill buildings, which are assuming interest as characteristic local buildings, unless some tangible gain justified this.

POPULATION AND OCCUPATIONS

As has been shown, the chief determinants of where population would accumulate until comparatively recent times have been soil, altitude and climate, and the tendency has been to make sites, suitable in these respects, accessible. In these days economic influences are strongest in determining the distribution of population, and the result is the slow but persistent depopulation of rural areas.

Fluctuation of Population in the administrative County of Cambridge

	1901	1911	1921	1931
Cambridge M.B.	50,453	55,212	59,264	66,789
Caxton and Arrington R.D.	7,821	7,775	7,404	7,311
Chesterton R.D.	21,172	23,182	23,805	26,879
Linton R.D.	10,729	10,567	9,926	9,967
Melbourn R.D.	8,556	8,538	8,092	7,782
Newmarket R.D.	19,065	19,864	18,647	18,878
Swavesey R.D.	2,468	2,584	2,464	2,398

From the table of census figures given above, it will be seen that there is a tendency for the population of all the rural districts to decline, with the exception of Chesterton, which benefits from the growth of the town areas

of Cambridge centred in it, though in some cases the latest figures show a rise again.

The influence of Population

The location of the population is influenced by the employment offered, and the location of population and sources of employment together influence to a great extent calculations as to the probable requirements of the future in connection with the provision of improved traffic communications, housing, drainage, water and light supply, and these in turn influence the regional plan. There will be areas, for instance, where absence of employment and adverse geographical conditions will mean lack of population, and incidentally little or no building and no need for the provision of public services.

In such areas it will clearly be economic and practicable to make large permanent open-space reservations for the benefit of the more densely populated areas.

Inversely, there will be areas where population concentrates round some thriving industry, and there it will be obvious that a well-considered road system and provision for development of all kinds must form part of the town planning scheme.

OCCUPATIONS

Manufacturing development in this region on any appreciable scale is probably still a vision of the future, but there are indications that it may come about; for instance, as the cement industry grows in importance, and as supplies of electrical power are made available for this in conjunction with the very adequate natural supplies of water in parts of the region, these will offer real inducements to the establishment of factories and industries.

The evidence of the Census goes to prove that at present the region is still very highly agricultural. The ratio of 290 agricultural workers per 1000 in the region as a whole is only exceeded by eleven other counties in England and Wales. This figure is increased to 490 per 1000 when rural districts are considered apart, which gives a true impression of the position. This ratio is said not to measure the degree to which agriculture is developed, but that to which other industries are undeveloped. This is substantiated by the information contained in the following tables:

The number of Agricultural Workers per 10,000 acres

Chesterton	536	Swavesey	395
Newmarket	460	Caxton and Arrington	358
Melbourn	398	Linton	351

showing the intensity of agricultural development in each of the rural districts, and

The number of Agricultural Workers per 1000 males

Swavesey	606	Melbourn	497
Caxton and Arrington	568	Chesterton	465
Newmarket	514	Linton	420

showing the exclusiveness of agricultural development.

It is evident that these do not run together; for instance in Chesterton, while agriculture is intensive, there are other considerable sources of employment; whereas in Swavesey, while there is no alternative to speak of, agriculture is not so intensive as it might be.

Employment is most varied in the rural districts of Chesterton and Linton. In Chesterton jam-making and allied work at Histon, and cement works on the outskirts of Cambridge, provide additional employment. In Linton practically all the tanning, glove-making and paper-making in the region is concentrated in the valley of the Cam.

The centre of employment is naturally Cambridge, where an exceptional number of people are engaged in the making of clocks, watches, scientific instruments and printing, though professional workers are in a very large majority.

In Caxton and Arrington Rural District the only notable alternatives to agricultural employment are the industries of the settlement at Papworth, which do not provide for local people.

In Newmarket Rural District race-horse training and breeding, and in Melbourn a certain amount of cement manufacturing, absorb a number of workers.

Industries arising out of the soil

Arising out of the use of the soil, there are a series of industries which are primarily rural, e.g. jam-making, brewing, milling and parchment-making.

Jam-making. The centre of this industry is the factory of Messrs Chivers and Sons at Histon. Begun something over fifty years ago, it has grown to be an extensive modern works, served by railway sidings for distributing the manufactured products and for receiving supplies of fuel and raw material required. Although jam-making is only seasonal, the works are kept fully running all the year by the production of other commodities. Fruit-farms have been established to provide material for the works, which

consume in addition the surplus fruit from orchards and gardens over a wide area of surrounding country and also from abroad.

Brewing. Southern Cambridgeshire is noted for its barley supplies, which provide the malt for local breweries, six of which are established in Cambridge.

Milling. Both wind and water mills are widely distributed throughout the region, but the grinding of wheat is rapidly going out, with the result that many of the mills have ceased working and are falling into ruins.

Parchment-making and Chamois Leather. The centre of this industry is at Sawston, where the suitability of the local water, the existence of lime and the breed of Cambridgeshire sheep make the right combination for establishing works. The industry is unfortunately declining owing to foreign competition.

Sawston village is the most highly developed in the region, for in addition gloves, paper, printing and aerated water are all produced, illustrating forcibly that limited factory centres in rural areas are practicable and satisfactory.

Gravel-getting, Cement-, Brick- and Tile-making. The nature of the soil also provides a certain amount of employment in brick- and tile-making, lime-burning, gravel-getting and in the manufacture of cement. This latter is the most important industry in this classification. Works are situated at Cambridge, Cherry Hinton, Shepreth, Barrington and Lode, and a concrete tile-making works is situated at Milton. The works at Burwell are now closed and it appears unlikely that they will re-open. At the other works, however, the manufacture of cement is progressive and active, and to a certain extent is detrimental to the agricultural industry owing to the drifting of the dust from the workings, often over an area covering a radius of half a mile. The Portland Cement Works, situated on the east side of Cambridge, and the Atlas Stone Cement Works have already caused extensive and deep excavations.

Other than the occupations provided by the industries enumerated, there are none of noticeable importance.

CONCLUSIONS AS TO INDUSTRIES

The general conclusion is that apart from agriculture, which is the most important industry in the region, the other industries existing are

particularly varied and, though not very extensive except in the case of the cement industry and that of fruit-growing and jam-making, there is every reason to expect that the established industries will increase in a normal way.

Groups of Industries

The subsidiary industries of the region divide themselves into two distinct groups: those arising out of the use of the soil both for productive purposes and as sources of raw material, and those which are not dependent on local supplies. In the first group are found cement works, brick-making and gravel-getting, fruit-farming, nursery-gardening, jam-making and fruit-preserving. All of these appear to have a future before them, if the land is not absorbed for development purposes, and are at present very thriving. In the second group are tanneries, chamois leather and parchment works, cardboard factories and manure works. These are largely congregated to the south of Cambridge in the neighbourhood of Sawston, which is probably the most industrial centre of the rural areas. This neighbourhood is particularly suitable for the extension of these and kindred industries, as adequate water supplies are provided by the Cam, and rail facilities by the London and North Eastern Railway.

Cement Works

The growth of these industries is likely to have a noticeable effect on the landscape. The cement industry, among the most modern, being scarcely one hundred years old, is likely to have the most conspicuous effect in vicinities where one or other of the necessary products that go to the making of cement are found. The extensive available supplies of chalk in the region offer every inducement to the establishment of cement works, and in close proximity to Cambridge itself very important works are already well established. In a flat area such as this the effect is apparent, as the chimneys of the works cannot but be very prominent. Every effort should therefore be made to secure that new works for this industry are on carefully selected sites, so that they are as little detrimental as possible to the surrounding neighbourhood.

Control of Excavations and Tips

An important point arises as to the extent of the permanent excavations which can reasonably be permitted. Powers of control in this matter are available, and it is of great importance that the question should be considered and that power should be taken to secure that there is some satisfactory conclusion to excavating operations. Along the banks of the Thames and Medway this industry has caused a complete change in the

character of the landscape over a vast area, and here too there is a risk of a similar effect arising in parts of the region.

The fact that the fruit-growing industry is so well established in the northern part of the region is a great asset from the point of view of amenity. The particular fertility of the soil in this locality allows for an economic utilisation of the land, and every endeavour should be made to secure that these orchard areas are retained. The extraordinarily rapid development of the jam-making works at Histon is proof of the practical and profitable advantages of properly utilising the soil.

As the region is relatively well served by rail and road communications, and the land itself is so suited for economic development, it must be anticipated that the future will see the establishment of new industries and processes not dependent on the surrounding district for supplies. Allowance must be made for this possibility in setting aside zones for industrial purposes.

From the foregoing it will be evident that provision must be made to allow for a certain amount of industrial expansion, particularly in the areas surrounding the Borough of Cambridge and in the Cam valley in the vicinity of Sawston.

DENSITY OF DEVELOPMENT

When the density of population is considered, taking the region as a whole, it will be readily appreciated that there is no shortage of land available for the establishing of new development. The present density of population (calculated on a basis of four persons to a house) is as follows in each area:

	Persons per acre	Acres per person	Acres per house
The Region	0·4	2·5	10·0
Cambridge M.B.	10·9	0·09	0·33
Caxton and Arrington	0·2	5·0	20·0
Chesterton	0·3	3·3	13·2
Linton	0·2	5·0	20·0
Melbourn	0·2	5·0	20·0
Newmarket	0·2	5·0	20·0
Swavesey	0·2	5·0	20·0

Clearly there is no evidence that extensive areas of land should be zoned at high densities of houses to the acre.

Rural Depopulation

At the International Geographical Congress in Cambridge in 1928 it was claimed that one of the causes of rural depopulation was the difficulty of

access to rural land, forcing rural workers to turn to the cities for an economic return for their labour, because they are unable to secure small plots of land to work intensively for themselves, so supplementing the low wages agriculture provides. This aspect of thought favours the cutting up of land into plots of reasonable size when development takes place in rural areas, as on housing sites.

A density of four houses to the acre, generally described as low, does in fact only allow a quarter of an acre to each house, and as part of this is naturally occupied by a building, the actual area available for cultivation is not unduly extensive.

Electricity in Rural Areas

It is to be hoped that the provision of a widespread supply of electricity in rural areas will assist the rural population to hold its own. Certainly the problems of the future population of rural areas and the provision of public services should be considered together, for the better conditions are made, the more likely is it that country districts will be populated, and, similarly, the more populated rural communities become, the more readily will public service supplies be multiplied.

PUBLIC SERVICES

Except in the area of the Borough, public services comprising supplies of water and sewage disposal are comparatively elementary. Electricity distribution is, however, unusually advanced for rural areas, and in connection with educational facilities a very interesting and advanced scheme has been promoted by the County.

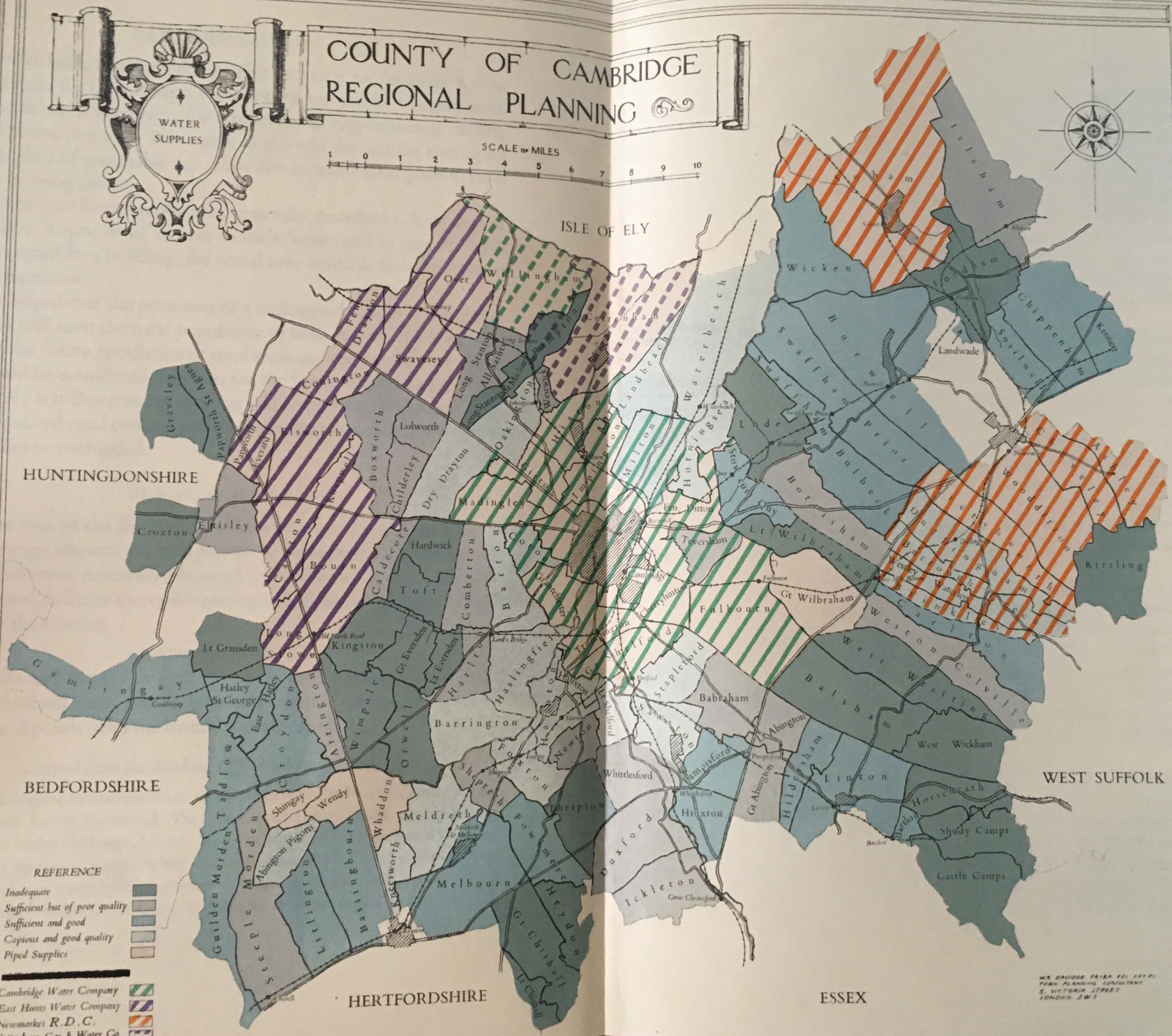
WATER SUPPLIES

Sources of Water

Water works and mains as a general rule do not exist in the rural areas; supplies are obtained from pumps, bore holes, surface springs, wells, standpipes, rivers and ponds from the natural sources of supply.

Extract from the Medical Officer's Report, 1925

"The chief geological formations from which water is derived in this County are the Lower Chalk and Lower Greensand. The Middle and Lower Chalk outcrop over a considerable area in the Melbourn, Linton, Newmarket and Chesterton Rural Districts, and are valuable sources of supply where not contaminated by surface pollution. The Lower Greensand is a water-bearing stratum of great importance, being protected by the overlying impermeable Gault Clay. It yields an excellent supply from borings in


COUNTY OF CAMBRIDGE
REGIONAL PLANNING
WATER SUPPLIES
SCALE OF MILES
1 0 1 2 3 4 5 6 7 8 9 10
REFERENCE
Inadequate
Sufficient but of poor quality
Sufficient and good
Copious and good quality
Piped Supplies
Cambridge Water Company
East Hunts Water Company
Newmarket R.D.C.
Cottenham Gas & Water Co.
Willingham Water Company
ISLE OF ELY
HUNTINGDONSHIRE
BEDFORDSHIRE
HERTFORDSHIRE
ESSEX
WEST SUFFOLK
Graveley
Papworth St Agnes
Papworth Everard
Elsworth
Conington
Fen Drayton
Swavesey
Over
Willingham
Rampton
Cottenham
Long Stanton All Saints
Long Stanton St Michael
Westwick
Oakington
Histon
Impington
Landbeach
Waterbeach
Milton
Horningsea
Fen Ditton
Boxworth
Lolworth
Childerley
Dry Drayton
Madingley
Girton
Knapwell
Croxton
Eltisley
Caxton
Bourn
Caldecote
Hardwick
Toft
Comberton
Barton
Coton
Grantchester
Cambridge
Cherryhinton
Trumpington
Gt Shelford
Stapleford
Fulbourn
Teversham
Gt Wilbraham
Lt Wilbraham
Stow cum Quy
Bottisham
Lode
Swaffham Bulbeck
Swaffham Prior
Burwell
Wicken
Soham
Isleham
Fordham
Chippenham
Snailwell
Kennett
Landwade
Newmarket
Exning
Woodditton
Cheveley
Ashley
Kirtling
Dullingham
Stetchworth
Westley Waterless
Brinkley
Burrough Green
Carlton
Weston Colville
West Wratting
Balsham
West Wickham
Horseheath
Shudy Camps
Castle Camps
Bartlow
Linton
Hildersham
Gt Abington
Abington
Babraham
Sawston
Pampisford
Whittlesford
Hinxton
Ickleton
Duxford
Great Chesterford
Thriplow
Fowlmere
Heydon
Gt Chishill
Lt Chishill
Melbourn
Meldreth
Shepreth
Foxton
Newton
Harston
Hauxton
Lt Shelford
Haslingfield
Harlton
Barrington
Orwell
Wimpole
Gt Eversden
Lt Eversden
Kingston
Long Stowe
Lt Gransden
Gamlingay
Hatley St George
East Hatley
Croydon
Arrington
Tadlow
Guilden Morden
Steeple Morden
Abington Pigotts
Shingay
Wendy
Litlington
Bassingbourn
Whaddon
Kneesworth
Royston
Old North Road
Lord's Bridge
W.R. DAVIDGE FRIBA FSI PPTPI
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5, VICTORIA STREET
LONDON SW1

villages in the Caxton and Arrington, Chesterton, Newmarket and Melbourn Rural Districts, and from the wells in Cambridge and the neighbourhood. The Jurassic Clays outcrop in the North-West of the County in the Caxton and Arrington, Chesterton and Swavesey Rural Districts; water from these strata is limited in quantity and uncertain in site. Boulder Clay covers a wide area of the Caxton and Arrington Rural District and the high lands to the South-East of the County; in Linton Rural District, springs or wells in the Boulder Clay are said to be the only available sources of supply. The water yielded is usually very hard, and may be brackish. In certain parishes in the Chesterton, Swavesey and Caxton and Arrington Rural Districts a supply is obtained from Gravels. For houses in isolated situations rain water may be the only source of supply. Occasionally ponds or lodes are the local source of supply, while shallow wells in the cottage gardens are frequently met with.

Public Piped Supplies

"Public piped supplies are limited in number. The Cambridge University and Town Waterworks Company supplies Cambridge and some ten surrounding villages in the Chesterton Rural District with water pumped from deep wells in the Chalk and Lower Greensand, mainly the former. In Chesterton Rural District the Cottenham Water Company supplies Cottenham and Rampton from the Lower Greensand, while Madingley has a piped supply from the same stratum. Willingham Water Company supplies Willingham with a constant service system from the gravel, while Long Stanton has a mained service from a similar source. A supply is furnished by the East Hunts. Water Company from a boring in the Lower Greensand, and is piped to the villages of Bourn, Knapwell, Longstowe, Caxton, Elsworth and Papworth Everard in the Caxton and Arrington Rural District, and to parts of Swavesey, Conington and Fen Drayton in Swavesey Rural District.

Mained Supplies

"There are several mained supplies in Newmarket Rural District, all of which are derived from deep tubed Chalk wells. Ashley, Cheveley and Woodditton (including Saxon Street) are supplied from two such wells at Saxon Street, Soham from a dug and bored well near Fordham, Stetchworth from a local deep well, while a few houses on the outskirts of Newmarket but in the parishes of Woodditton and Cheveley are supplied by the Newmarket Waterworks Company. A scheme for the supply from the Chalk of the parishes of Dullingham, Westley Waterless, Burrough Green and Brinkley has recently been completed. There are no piped public supplies in the Melbourn and Linton Rural Districts.

Wells

"The majority of the rural parishes depend for their public supply upon a well in the village sunk in one of the strata above named, from which water is raised by hand, and there is often a considerable distance for water to be carried to individual houses. Some parishes are devoid of any public supply, and mention may here be made of the parish of Fordham in the Newmarket Rural District, many of the private wells being undoubtedly polluted. The need for a public supply was recognised by the District Council many years ago, and the main for the adjoining parish of Soham was so constructed as

to permit of a branch main being subsequently laid for the supply of Fordham. The matter has been brought to the notice of the Ministry of Health, and it is to be hoped that an adequate scheme will before long be agreed upon. The supply of the Parish of Bottisham in the same sanitary district is also an old-standing problem awaiting solution.

"In Chesterton Rural District a new public well has been bored to the Lower Greensand at Milton and similar provision has been decided upon at Horningsea. More satisfactory supplies at Bottisham Lock and Comberton are under consideration and it is understood that certain owners will provide wells to supply part of Newton. Ninety-four per cent. of the population of the Sanitary District reside in parishes in which a public supply has been provided."

CAXTON AND ARRINGTON

In this district the sources of supply are mainly from wells and ponds, and the nature and sufficiency of the supply varies very considerably in each parish. The only Water Company operating is the East Hunts. Water Company, supplying in bulk to the District Council for the villages of Bourn, part of Longstowe, Knapwell, Elsworth, Caxton and Papworth Everard.

In Arrington, Caldecote, Croydon, Great Eversden, Hardwick, the Hatleys and Gamlingay the supply is also at present good and sufficient, but will not necessarily provide for any increased demands. At Eltisley, although the wells make good provision, they are too distant from some houses.

It is therefore less imperative to consider making further provision for these villages than for the remaining parishes, which are badly off for water.

CHESTERTON

In the district of Chesterton the provision of water supplies is more advanced than is general in the rural areas. About 61 per cent. of the population of the district is supplied by a piped service, ten parishes being supplied by the Cambridge Water Company, two by Cottenham Water Company, one by Willingham Water Company and one from the Madingley Waterworks. The remaining parishes are supplied from deep wells and pumps, and the supply in each case is of good quality and generally plentiful, the only drawback being, in some cases, the distance of the pumps from the houses.

In the parishes of Long Stanton, Comberton, Harlton, Teversham and Newton supplies are obtained from shallow wells in the gravel and chalk

which, though adequate for the moment, cannot be counted on as a reliable supply for any future expansion.

No public supplies of any kind are available in Childerley, Quy, Little Wilbraham, Westwick or Long Stanton St Michael, but water is obtained from private wells in the chalk. It appears that piped supplies could fairly readily be carried to these villages if the question of cost could be overcome.

LINTON

Many of the parishes in this district suffer from inadequate supplies, either by reason of the impurity or insufficiency of the water used, often from ponds, or on account of the distance involved in fetching the water and the heavy labour entailed in raising it by hand. There are no piped supplies in the district and the population is entirely dependent on wells and ponds.

The Linton R.D.C. have given very considerable thought to the question of improving the present position, and a scheme has been drawn up with a view to supplying Balsham, Horseheath, West Wickham, West Wratting, Castle Camps and Shudy Camps. This scheme is before the County Council for consideration and financial assistance under the powers in the Local Government Act, 1929. It is understood that a decision in the matter of the action to be taken is dependent on the readjustment of rural district boundaries, which will clearly affect any schemes for more scientific water supply promoted by the Local Councils for the areas as they now stand.

MELBOURN

In Melbourn Rural District there is no piped supply. The sources are from artesian and other wells, both deep and shallow, and from streams, ponds, springs and rain water. It is remarkable that in some parishes the flow of the coprolite and artesian wells is such that large quantities of pure water, of which effective use could probably be made, run to waste daily. On the other hand several parishes are served in an uncertain way by a multiplicity of shallow wells, many of which are polluted, or likely to be so in the absence of a proper system of sewage disposal.

The parishes best served are Abington Pigotts, Wendy, Shingay, Whaddon and part of Bassingbourn. In Melbourn, Guilden Morden,

Steeple Morden and Thriplow supplies are liable to pollution, and in Chishill and Heydon the wells are not conveniently situated in relation to the distance to the houses.

NEWMARKET

The Rural District Council supply the parishes of Burrough Green, Brinkley, Dullingham and Westley Waterless, and water is partly obtained from the bore holes of the Ely Waterworks at Isleham, supplemented by private wells and the River Lark, which is liable to pollution.

Supplies are most unsatisfactory in Fordham, and there are proposals to serve the village by extending the supply at Soham, which, together with the parishes of Cheveley, Woodditton, Ashley, Dullingham, Westley Waterless, Burrough Green, Brinkley and Stetchworth, has a mained supply.

SWAVESEY

With the exception of Swavesey parish, where the wells are impure and inadequate, the supplies in the parishes of this district are fair. The East Hunts. Water Company supplies in bulk for Swavesey, Conington and parts of Fen Drayton, and proposes to supply Over when further works are completed.

The above details and the extent of the statutory water companies' areas are shown on the water supply diagram, and from a study of this there is an obvious necessity for considering the whole matter of improving supplies, for where better supplies are made available there is a likelihood that new development would be attracted into rural areas, thus causing a better distribution.

Since the Local Government Act, 1929, came into force with its provision enabling a County Council to contribute towards the expenditure incurred by the Council of a District in the provision or maintenance of any sewers or sewage disposal works, or of a supply of water, or in the improvement of an existing supply of water, the position with regard to rural districts is much more satisfactory. The matter is one that is already engaging the attention of the County Council and in reply to a circular letter the Rural District Councils have made summaries, on which the above information is based, of the position with regard to water supplies in their areas for the County Council with a view to reorganisation. The County Council have agreed to make contributions subject to certain conditions, but so far no actual application has been made for a grant.

ELECTRICITY SUPPLIES

The region is served by two Companies, the Borough of Cambridge and the immediately adjoining villages by the Cambridge Electric Supply Co., Ltd., and the remainder by the Bedfordshire, Cambridgeshire and Huntingdonshire Electricity Company, whose scheme for the supply of electricity to the village communities is already noticeably advanced. High-power transmission lines bring current from the Grid Substation near St Neots into Cambridgeshire by two routes from the west, while another line from the south enables emergency supply to be taken from the North Metropolitan Company's mains at Royston.

The high-power transforming stations for the County are situated at Histon, Fulbourn, Sawston and Shepreth, and from each of these main substations subsidiary lines run out to the different villages.

The principal subsidiary transmission lines run from Papworth to Eltisley and Bourn; from Cottenham to Landbeach and Waterbeach; from Fulbourn Mental Hospital through Fulbourn to the Swaffhams, Burwell and Soham; from Shepreth to Foxton, Harston and Melbourn; and in the north-eastern area of the region from Ely via Soham to Fordham and Isleham.

This provision should be of inestimable advantage to the villages embraced by the scheme, and ultimately all villages will receive a supply. Those in which a supply is already distributed are:

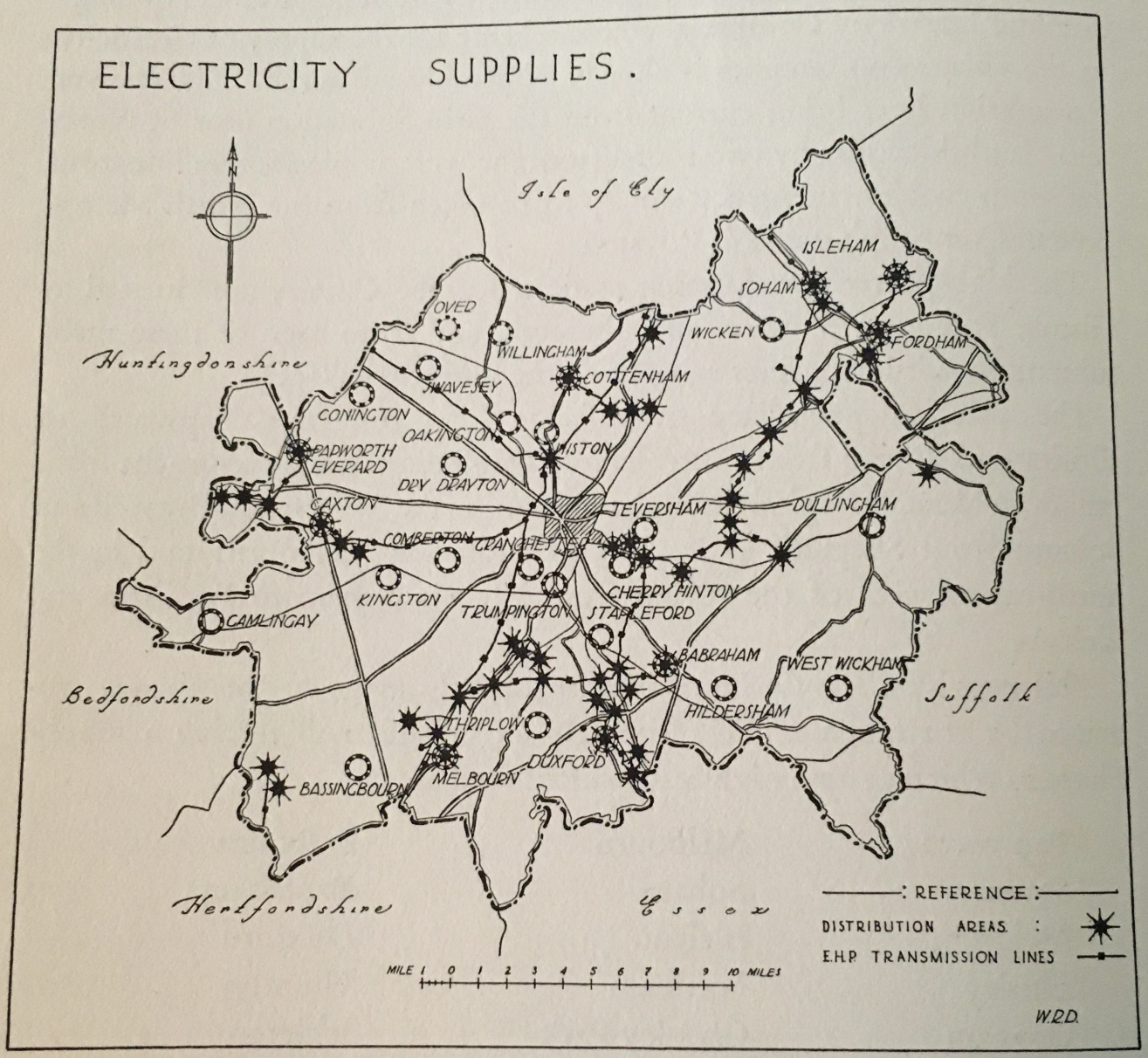
Papworth
Sawston
Meldreth
Eltisley
Croxton
Caxton
Bourn
Cottenham
Landbeach
Waterbeach
Chittering
Whittlesford

Melbourn
Soham
Isleham
Fordham
Chenley Park
Burwell
Swaffham Prior
Swaffham Bulbeck
Bottisham
Shepreth
Little Wilbraham
Great Wilbraham

Fulbourn
Babraham
Duxford
Hinxton
Ickleton
Newton
Harston
Foxton
Guilden Morden
Steeple Morden

In the village centres it is satisfactory that the low-power cables are laid underground, so that no detriment is caused to the amenities of the villages.

A clear idea of the extent to which electricity distribution has been developed up to date is indicated by the diagram below.



EDUCATIONAL FACILITIES

The Cambridgeshire Education Committee have promoted a scheme for the establishment of village colleges throughout the County, intended to benefit "the social economic welfare of the countryside". This scheme is a most valuable experiment, and should contribute considerably to the satisfactory future of rural areas.

The object of the scheme is "to co-ordinate the statutory services of the County Council in the countryside (primary and adult education; agricultural demonstration and instruction; the school and public health services; the county library service and outdoor recreation facilities) in selected centres by means of village colleges, each of which will serve the needs of the central village and a number of adjacent villages.

"Each village college, in addition to providing for the statutory services of the County Council, will furnish a home for the voluntary associations of the countryside.

"Its playing field will serve not only the central school but local athletic clubs, and its buildings, which will include a hall, will provide a centre for the social life and rural local government of the district".

The first college now in being at Sawston has as its basis the central school for Sawston and the surrounding area of several villages. The school has a domestic science block, a workshop and laboratories, a main hall and series of rooms for classes and meetings.

The assumption is that an individual village is too small a unit for the effective organisation of the social services, and the growth of modern transport has made possible a reorganisation based on a group of villages. Ten further centres will eventually be provided, following the general lines of the village college at Sawston, serving groups of villages as set out below:

BASSINGBOURN GROUP

Bassingbourn	Guilden Morden	Wendy	Arrington
Abington Pigotts	Steeple Morden	Whaddon	Wimpole
Litlington	Odsey	Croydon	Orwell

BOTTISHAM GROUP

Bottisham	Little Wilbraham	Swaffham Bulbeck	Fen Ditton
Great Wilbraham	Stow-cum-Quy	Lode	Horningsea

BOURN GROUP

Bourn	Toft	Papworth St Agnes	Conington
Longstowe	Hardwick	Papworth Everard	Boxworth
Caxton	Childerley Gate	Elsworth	Comberton
Kingston	Graveley	Knapwell	Croxton

BURWELL, SOHAM AND FORDHAM GROUP

Burwell	Swaffham Prior	Fordham	Chippenham
Soham	Reach	Isleham	Snailwell

DULLINGHAM, STETCHWORTH GROUP

Dullingham	Ashley	Westley Waterless	Carlton
Stetchworth	Woodditton	Burrough Green	Six Mile Bottom
Cheveley	Kirtling	Brinkley	

HARSTON GROUP

Harston	Foxton	Harlton	Grantchester
Hauxton	Barrington	Little Eversden	Barton
Newton	Haslingfield	Trumpington	

HISTON, COTTENHAM GROUP

Histon	Oakington	Madingley	Milton
Cottenham	Girton	Coton	Chittering
Rampton	Dry Drayton	Waterbeach	Landbeach
Impington			

LINTON GROUP

Linton	Great Bartlow	Castle Camps	Weston Colville
Hildersham	Horseheath	Balsham	West Wickham
Great Abington	Shudy Camps	West Wratting	

MELBOURN, FOWLMERE GROUP

Melbourn	Fowlmere	Shepreth	Great Chishill and
North Hall	Thriplow	Heydon	Little Chishill
Meldreth			

SAWSTON GROUP

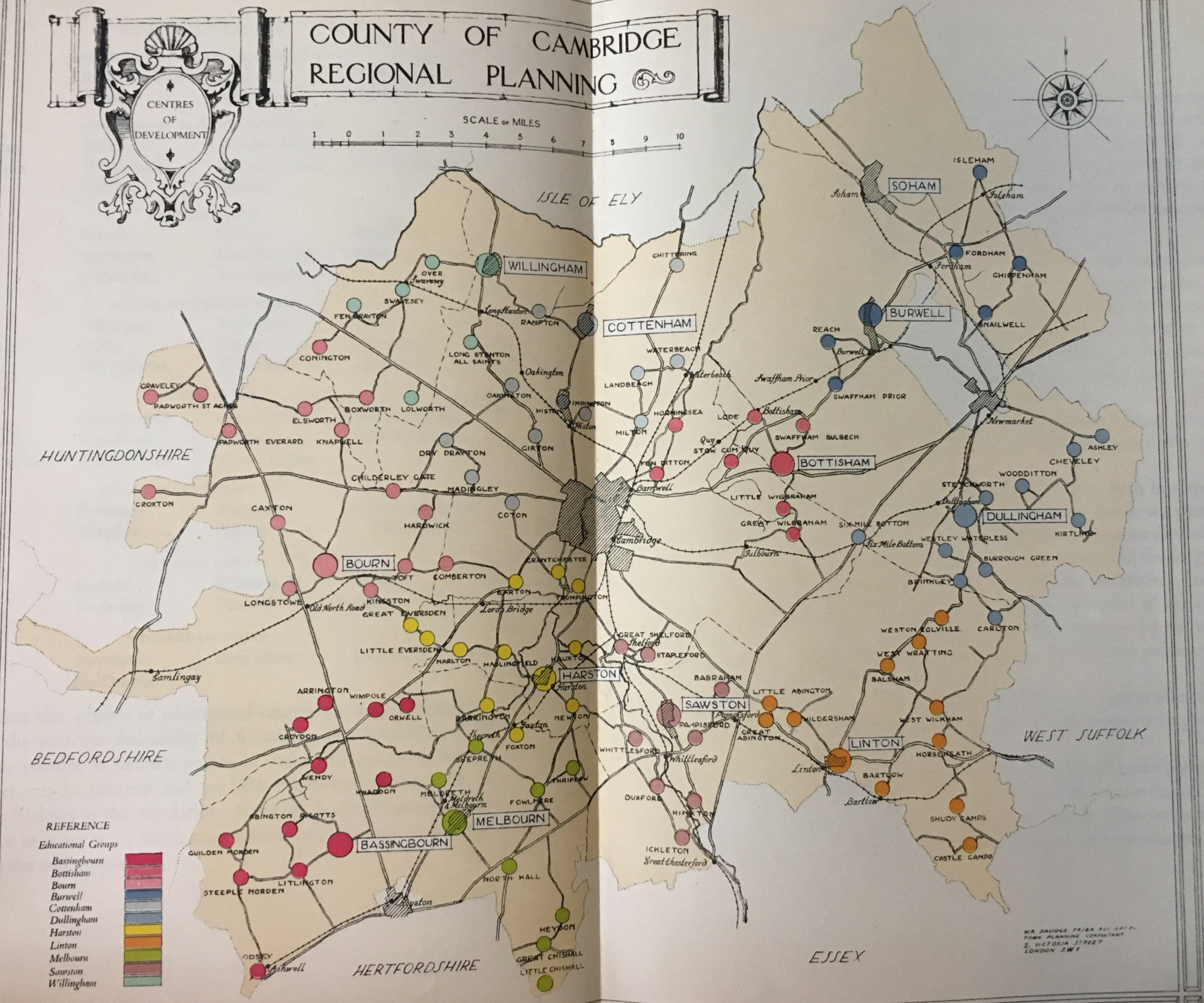
Sawston	Shelford	Whittlesford	Hinxton
Babraham	Stapleford	Duxford	Ickleton
Pampisford			

WILLINGHAM GROUP

Willingham	Swavesey	Long Stanton	Lolworth
Over	Fen Drayton		

Concentration of Development

The fact that this scheme of educational centres has been advanced is evidence of the extreme desirability of focussing development in rural areas as far as possible at definite points, in order that proper provision of all services can be planned and probable requirements estimated to give the best facilities to the population. Scattered development is difficult to provide for in every way, and is uneconomic of effort and in the provision of services and supplies.


COUNTY OF CAMBRIDGE
REGIONAL PLANNING
CENTRES OF DEVELOPMENT
SCALE OF MILES
1 0 1 2 3 4 5 6 7 8 9 10
ISLE OF ELY
HUNTINGDONSHIRE
BEDFORDSHIRE
HERTFORDSHIRE
ESSEX
WEST SUFFOLK
WILLINGHAM
COTTENHAM
BURWELL
SOHAM
BOTTISHAM
DULLINGHAM
BOURN
HARSTON
SAWSTON
LINTON
MELBOURN
BASSINGBOURN
Cambridge
ISLEHAM
FORDHAM
CHIPPENHAM
SNAILWELL
ASHLEY
CHEVELEY
WOODDITTON
KIRTLING
BURROUGH GREEN
BRINKLEY
CARLTON
WEST WRATTING
BALSHAM
WEST WICKHAM
HORSEHEATH
SHUDY CAMPS
CASTLE CAMPS
REFERENCE
Educational Groups
Bassingbourn
Bottisham
Bourn
Burwell
Cottenham
Dullingham
Harston
Linton
Melbourn
Sawston
Willingham
W.R. DAVIDGE FRIBA FSI. ARTPI
TOWN PLANNING CONSULTANT
5 VICTORIA STREET
LONDON SW1

COMMUNICATIONS

It is remarkable how definitely and completely the various traffic communications lead to the centre of the region where the Borough of Cambridge is situated. The result is an unusually well-distributed system of radial communications serving the region so uniformly that practically every section of the area is equally accessible by main road or railway, provided the services by public vehicle and train are well and systematically organised.

ROADS

General Character

The existing main roads are generally of exceptional and adequate width between hedges, the grass margins adding much to the satisfactory character of the roads. Although in all probability originally provided for the passage of cattle and flocks into the markets, these margins have as great or even greater value to-day. They are a very definite addition to the amenities and enable the widening of the carriage-way to be carried out without a general disturbance of properties fronting on the roads.

The class "A" roads are direct and well aligned throughout the major part of their length, due to the easy grades and firm ground over which they are sited.

The class "B" roads are considerably less effective, both in respect of directness of course and in alignment. This is clearly due to the particular character of the ground across which they lead. In the fen areas they wander, owing to the necessity for selecting the slightly higher and firmer ground to avoid obstruction from the excess of water and insufficient drainage. This is equally true in the case of the roads up the valley of the Granta. In the uplands the roads are thrown out of true alignment by the varying levels necessitating the selection of a route on which the gradients were moderate and easy.

There is therefore little possibility of making any radical alterations to the roads of second class standard, or any real advantage to be gained by so doing.

The extent to which each classified main road is used at the present time is indicated by the following table of the latest traffic census figures, giving the tonnage of vehicles per week at each census point. The comparison between the most recent figures and those for previous periodical recordings

CAMBRIDGE ROADS

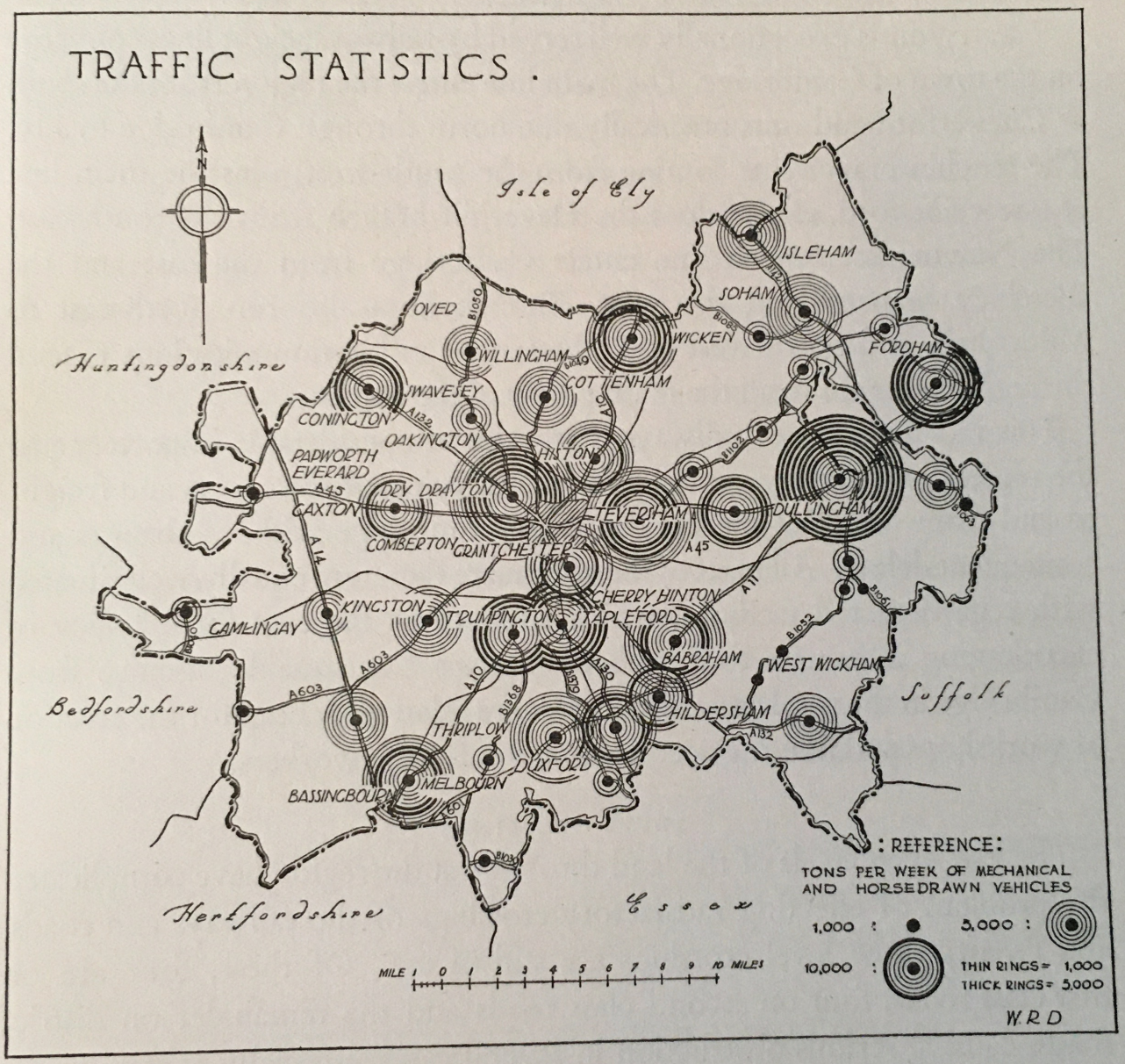
Traffic Statistics showing Tons per Week of Mechanical and Horse-drawn Vehicles

Road	Description	Permanent No. Census Pt.	Tons **1928**	Tons **1931**
A. 45	Newmarket Heath–Cambridge–Croxton	2365	9,565	12,263
		2366	21,487	23,730
		2367	13,522	16,317
A. 14	Royston–Godmanchester	2354	5,635	7,097
		2355	4,331	4,800
A. 603	Potton–Tadlow–Cambridge	2370	2,406	2,165
		2371	2,947	7,959
A. 10	Royston–Hauxton–Cambridge–Ely	2347	22,777	17,754
		2348	—	19,633
		2349	—	13,271
		2350	10,782	22,464
		—	41,682	—
A. 132	Haverhill–Abington–Cambridge–Fen Stanton	2358	11,718	15,585
		2360	12,753	12,644
		2361	5,945	6,918
		2362	5,588	5,990
A. 142	Newmarket–Soham–Ely	2359	25,772	34,122
		2363	6,512	7,507
A. 601	Royston–Pampisford	2364	10,718	9,034
		2368	8,384	10,299
A. 11	Great Chesterford–Newmarket–Thetford	2369	11,569	14,147
		2351	9,899	11,154
		2352	14,527	18,903
		2353	—	45,500
A. 130	Stump Cross–Sawston–Trumpington	2205	23,248	24,893
		2356	—	25,043
		2357	—	16,622
		—	14,288	—
			1926	**1929**
B. 1061	Great Wratting–Burrough Green–Newmarket	2036	2,569	3,047
B. 1063	South-east of Newmarket	2037	1,508	1,485
		2039	4,168	4,859
B. 1102	Freckenham–Fordham–Swaffham–Lode	2040	782	1,500
		2107	4,572	4,154
		2108	2,945	3,438
		2109	4,011	3,020
B. 1049	Cottenham–Histon–Cambridge	2110	—	3,297
		2025	11,767	13,269
B. 1050	Willingham–Girton	2026	4,052	7,364
		2027	3,148	4,498
B. 1039	Great Chishill	2028	5,063	6,010
B. 1379	Great Chesterford–Whittlesford–Great Shelford	2000	2,019	2,126
		2349	3,645	2,890
B. 1368	Barley–Fowlmere–Hauxton	2350	4,079	3,704
B. 1052	Linton–Brinkley	2345	3,304	2,787
		2029	594	1,003
		2030	1,225	1,466
B. 1040	Potton-Gamlingay	2031	1,396	1,708
		2003	2,500	2,964
		2005	657	2,104

is not discussed, but the relative use to which each road is put is clearly indicated on the diagram by concentric circles at each official census point.

Concentration of Traffic

It will be seen from these figures that the volume of traffic is, as might be anticipated, densest on the main approaches into Cambridge, as for example where two streams of traffic from London merge.



As the main road system throughout the region is at the present time unusually complete and direct, the necessary improvements on these roads are of a relatively minor character. The transport using the roadways throughout the region is to a large extent pleasure traffic and is of a seasonal character; it is therefore only intermittently that the roads are used to anything like their fullest capacity. They have almost throughout an

exceptionally advantageous width, and in very few cases is there any urgent necessity for general widenings. The provision of by-passes to some of the principal villages is the most outstanding point for consideration. These are discussed in detail in the schedule in Part II of this report dealing with the outline Regional Plan.

Road Proposals

RAILWAYS

The region is exceptionally well served by railways: eight lines converge on the town of Cambridge. The main line enters the region from the south at Chesterford and runs practically due north through Cambridge to Ely. The Hitchin branch line coming from the south-west joins the main line at Great Shelford, as also does the Haverhill branch from the south-east. The Newmarket branch line enters Cambridge from the east and the Bletchley branch from the west. Branch lines also run north-east to Mildenhall, and north-west to St Ives; thus rail communications extend through the region to all the main points of the compass.

Radial System

This radial system of railways is an asset of considerable importance to the region, as it readily provides for the carrying of passengers and freight to and from the chief market centre of Cambridge without changes and consequent delays. All parts of the region are therefore equally well situated with regard to rail facilities, which strengthens the case for a policy of encouraging industries to detach themselves a reasonable distance from Cambridge in the rural areas where sites are relatively cheap for the erection of workshops and housing accommodation for the workers.

Facilities

LEVEL CROSSINGS

The low even levels of the land throughout the region have complicated the problem of effecting satisfactory crossings of the railways and roads, and twenty-three level crossings are still in use. Of these, four are on first class roads, four on second class roads and the remainder on district roads, causing serious obstruction in several cases, especially as stations are frequently situated in close proximity to the crossing, necessitating prolonged closing of the gates. This is accentuated where there are goods yards and shunting takes place over the line.

Obstruction on Roads

At practically every important crossing groups of buildings collected at the point add to the difficulty of making an improvement, as bridging would interfere with access and light to these.

Bridging over

The only satisfactory method of dealing with the problem is to bridge the crossings and, as the low level of the land, causing a tendency to flood on any section of the roads lower than usual, generally debars the possibility of bridges under the line, the remaining alternative is to bridge over.

The improvement of crossings on the district roads will naturally have to be deferred, but on the main roads the question is urgent, and recommendations are made in the Road Section of Part II of the report dealing with the Regional Plan.

CANALS

Communication by means of canal was one of the earliest methods used in the region. It is generally accepted that Carr Dyke is of Roman origin and that it was projected by Agricola to carry corn in boats for the army in the north. The section down to Cambridge was constructed by Carausius and Cambridge was founded at the head of the navigation.

Early Use

During the Middle Ages, when roads were generally scarce and defective, water communication was extensively used. The efficiency of the water communication provided by the Wash rivers and canals was, however, greatly impaired by the erection in 1650 of the Denver Sluice, which caused obstruction to navigation, and from then down to the end of the eighteenth century facilities for water-borne traffic continued to deteriorate in the eastern counties. There is still a certain amount of barge traffic into and out of Cambridge, but on the whole better facilities are provided by road and rail, and it is scarcely probable that the communications by water in the region will ever regain their previous supremacy.

Present Utilisation

The navigable waterways are now mainly used by barge traffic carrying coal from Lynn to the sugar factory near Ely and gas water from Cambridge to the manure factory at King's Lynn. The value of the waterways is chiefly proved by the fact that the important sugar-beet factory near Ely collects large supplies of beet from the surrounding farms by water. Tolls are collected by the Ouse Catchment Board,who have taken over the navigation of the South Level River.

AERODROMES

The general adoption of flying as a means of transport is a matter of the near future. The Air Ministry at the latter end of 1928 sent to all local authorities a circular letter on the subject of the provision of

municipal aerodromes and, following on this, it is essential to consider what the requirements of the area in this respect are likely to be. The level character of the greater part of the region makes the selection of sites a fairly easy matter, and for the moment it is only of urgent importance to consider the provision of a future flying ground for the Borough.

Selection of Sites

A small private aerodrome has been established for some years on fields adjacent to Coldham's Common. There appears to be every reason why this should be utilised, and properly organised such an aerial landing-place should not be a detriment but an attraction to the town, and incidentally extend the open space area on the east side, where the development is more congested. It would, however, be supplementary only and it is considered advisable to set aside a further site for a municipal aerodrome. Consideration has been given to a site on the west side of Milton Road, north of the Borough, in close proximity to King's Hedges Road, which is planned to form part of the proposed Ring Road. The site would be eminently suitable from the point of view of accessibility and, in view of the fact that the surface soil is gravel, it would be readily drained and consequently satisfactory for the purpose of aerial traffic. Experts are of the opinion that the site should be reserved and that, in the whole area of the scheme, whilst there are a number of possible sites, the Milton site has greater advantages.

Proposed Site for Aerodrome

Part II

THE REGIONAL PLAN

GRANTCHESTER MEADOWS

Sylvia A. Abram

CHAPTER III

GENERAL BASIS—ROAD PROPOSALS IMPROVEMENT OF LEVEL CROSSINGS

GENERAL BASIS

General Note

In considering proposals for inclusion in the regional plan, the conditions and resources of the region as summarised in Part I have been taken as a basis for determining where traffic communications require improving, where further building development of varying character could most satisfactorily be located, and which areas of land should, in the interests of the County as a whole, be reserved as open spaces to provide for the requirements of the community.

The regional planning proposals dealing with the above are, for the purpose of convenience, grouped under the following heads: Road Proposals, Zoning and Open Spaces. They are intended to form the framework for more detailed schemes which it may from time to time prove necessary or advisable to promote, and do not constitute a complete volume of material for inclusion in local schemes.

Statutory Regional Plan

In the Town and Country Planning Act, 1932, provision is made for the preparation of a statutory regional planning scheme without interference with the right of the Local Authority to prepare supplementary detailed schemes. Where it appears desirable, it will be possible under these provisions to give statutory force to the broad outlines of a regional scheme and to reinforce it with a supplementary scheme including any additional provisions that appear to be desirable.

In view of the generally rural character of the region, such a method of planning would have more value and efficacy than a scheme promoted under the previous system, which entailed either agreeing zoning proposals rather prematurely with the owners concerned over large tracts of open country, or, alternatively, scheduling these as "undetermined areas", where the nature of the development permitted is less definitely controlled. The new Act enables such areas to be temporarily restricted from general development.

The object of the regional plan is:

(*a*) To provide a co-ordinating framework on which to build up supplementary town planning schemes.
(*b*) To facilitate the economic and reasonable development of the region.
(*c*) To preserve as intact as possible the existing beauty and amenities of the region.
(*d*) To provide for the convenience and health of the community.

ROAD PROPOSALS

The existing main road system is such that few proposals of any magnitude are necessary to perfect it for the use of present and future traffic. The principal proposal is that for the Ring Road round Cambridge, which would, in effect, constitute an improvement linking up each of the radial roads into the town. Apart from this, the recommendations for road improvements deal with village by-passes, the improvement of corners, widenings, and bridging of level crossings, as described in the following schedule:

CAMBRIDGE RING ROAD

Recommended width 120 ft. between hedges, or 60 ft. with 30 ft. building lines.

The object of the proposed Ring Road is to provide a series of links joining up two radials, which will enable through traffic, by using the "ring" as a series of by-passes, to avoid going into the centre of the town and out again. It should be borne in mind that although the term suggests a symmetrical route round the town, there is no necessity for it to be geometrically complete, as physical difficulties and properties have to be taken into consideration.

Traffic surveys give an uneven volume on different radial roads, and from this it can readily be deduced that some segments will be required more urgently than others, and that there is no necessity to complete the scheme in one operation.

As a basis for planning the areas adjoining the town centre which will in the normal progress of things be absorbed into the ambit of development, there is much to recommend the proposal for the Cambridge Ring Road, the route of which has been the subject of much negotiation with the large interests concerned, and the line at present proposed by the Town planning Committee is indicated on the Map accompanying the Report.

Completed section of Ring Road

J. F. A.

Foxton Level Crossing

A. 10. ROYSTON–CAMBRIDGE SECTION

Recommended width 60 ft. between hedges with 30 ft. building lines.

In view of the importance of this road as a main traffic artery of national importance it is essential to facilitate through traffic by avoiding the centre of Cambridge. A spur on to the Ring Road has therefore been proposed which would leave the Royston Road south of the railway line below Trumpington in an eastward direction intersecting A. 130 (Trumpington–Hinxton) and A. 132 (Cambridge–Linton), and linking with the already completed section of the Ring Road on the east of the Borough. Thereafter the Ring Road completes the link with the Ely Road to the north of the town.

For traffic trending in a westerly direction towards St Neots or Godmanchester the western portion of the Ring Road would ultimately provide an effective route, considerably shortening the distance and obviating much traffic congestion.

To extend and complete the spacious character of the approach to Cambridge by the Trumpington Road, building lines of not less than 30 ft. should be prescribed on the unbuilt sections.

Road A. 10 enters the County just north of Royston, and traffic using this route, whether coming from Baldock and the west end of London, or from Ware and the City, would be much facilitated by the by-pass proposals for Royston already recommended by the Hertfordshire Regional Committee.

Melbourn By-pass

The second point for consideration on this route is the provision of a by-pass to Melbourn village, and a tentative route for this has been surveyed on the east side.

Foxton Level Crossing

A serious obstruction is caused by the double level crossing at Foxton, but plans have been prepared for obviating this on the lines discussed in the section dealing with level crossings.

Harston

A general improvement in alignment has been carried out to improve the corners southward of Harston, and building lines prescribed. The main road at this point may now be considered satisfactory.

Hauxton Bridge

Various suggestions have been considered for an improvement at the bridge crossing the Granta north of Hauxton. The final decision is to re-align the approaches of the existing bridge, which will be widened and reconstructed in the old materials and to the old design, thus preserving the character of Hauxton Bridge, which is one of the most interesting in the County. The regulation of the river at this point is a necessary part of the work to prevent the present tendency to flood.

Cambridge–Ely Section (Milton Road)

In view of the Cambridge Ring Road, no improvements would appear to be necessary in the immediate neighbourhood of Cambridge. At Milton, however, the level crossing presents difficulties, and a general straightening and a short length of new road in the village are suggested. The old house known as Milton Hall is falling into disrepair and, unless there is a possibility of its being restored, a short link road north-east of the junction of the lane from Baitsbite Lock would give an obvious improvement in the line of the main Ely Road; otherwise a reasonably satisfactory improvement could be carried out by widenings.

Waterbeach

A link to the Ely Road to improve access to Waterbeach is a necessary part of any road work in this vicinity. A scheme has been prepared linking the Horningsea Road with the Ely Road (Akeman Street) with a spur leading into Waterbeach village. The alignment of the road runs near the west side of Carr Dyke, and it is recommended that to preserve this ancient monument the land lying between the two should be acquired as a permanent reservation.

Akeman Street

The portion of the Ely Road north of Goose Hall follows the line of the ancient Akeman Street, and its general line cannot well be improved. In the vicinity of Landbeach, the Roman road has fallen out of use, probably owing to the waterlogged character of the ground, but it is desirable that the general line of the old route from King's Hedges Road should be restored and brought into use as a development road.

A. 130. BISHOP'S STORTFORD–STUMP CROSS–SAWSTON–TRUMPINGTON ROAD

Recommended width 60 ft. between hedges with 30 ft. building lines.

This constitutes the eastern approach road into Cambridge from London joining with A. 10 at Trumpington. So long as the frontages on the corners at this important junction remain open the visibility for traffic is reasonably satisfactory; but if development takes place, the disadvantages of the corner should be eradicated by the proper planning of the junction on the lines indicated in the advisory circular of the Ministry of Transport.

Throughout the length of this road from Stump Cross to Pampisford cross-roads the width and alignment are reasonably satisfactory.

Pampisford Cross-roads

At this point two most important roads intersect at right angles, accentuating the disadvantages present at Stump Cross. It is therefore even more essential to prevent any development within a wide radius of this junction. It is recommended that definite plans for this junction should be established and the required set-backs secured.

Sawston

A great deal of attention has been given to the possibility of an alternative road at Sawston, particularly in view of the fact that Sawston is growing rapidly, both industrially and residentially. There are two possible routes for such an alternative road, neither of which is entirely free from natural difficulties that have been increased by recent development.

(*a*) *East of Sawston*. An old track leading from The Spike northwards past the church is capable of very definite improvement. If this were effected it would be of considerable service to traffic, although only constituting a relief road to the southern portion of the village.

(*b*) *West of Sawston*. A greater improvement could be secured by the provision of a supplementary road leaving the existing road north of The Spike, passing on the east side of the housing scheme and Sawston College, and rejoining the main road near the cemetery. This has advantages over the eastern route, but entails some disturbance of existing properties. Should negotiations fail to secure agreement on this line the route could

follow a course further west, roughly parallel with the railway and rejoining the existing road to the south of Stapleford.

Neither of these routes can be considered essential from the point of view of the trunk road system of the County, as it is intended that heavy traffic shall as far as possible be diverted to follow A. 11 (London–Newmarket Road) and A. 132 (Linton–Cambridge Road), but in view of the probable future development of Sawston, reservations on the above lines should be secured for future extension and improvement of the local road system.

Great Shelford

So far as the main road through Great Shelford is concerned little improvement in direction can be obtained, but building lines should be prescribed wherever possible. The main road passes over two railway bridges which are of reasonable width for present traffic. Cross traffic between Little Shelford and Cherry Hinton is served by two district roads, on both of which there are level crossings on the main line into Cambridge. The efficiency of these cross routes is therefore considerably impaired. Detailed consideration should be given to the merits of the proposal in the Cambridge and District Town Planning Scheme for a new bridge over the railway linking up both the Clark's Hill and White Hill Roads with the Little Shelford Road.

A. 132. HAVERHILL–LINTON–CAMBRIDGE–HUNTINGDON ROAD

Recommended width 60 ft. between hedges with 30 ft. building lines.

This is the longest cross-country road from the south-east to north-west passing through the Borough of Cambridge. West of Cambridge this road is a portion of the old Roman way from Colchester, the Via Devana, and no improvement in direction could be suggested. In the neighbourhood of Cambridge the western half of the Ring Road will ultimately form a by-pass to the town and facilitate any traffic on this road travelling north-westward towards St Neots or Huntingdon.

Linton and Little Abington

Possible by-passes, both at Linton and Little Abington, have been investigated, but it has been found that the improvement of the existing district road, avoiding both these villages, appears to be the more desirable,

SUGGESTIONS TO COUNTERACT RIBBON DEVELOPMENT ON ARTERIAL ROADS

FIG. 1

FORMAL SCHEME ON CUL-DE-SAC UNDER 600'0" IN LENGTH 24'0" IN WIDTH WITH A 16'0" CARRIAGEWAY DEVELOPMENT AT 6 TO THE ACRE

FIG. 2

PRIVATE DRIVE WITH DEVELOPMENT AT 1 TO THE ACRE

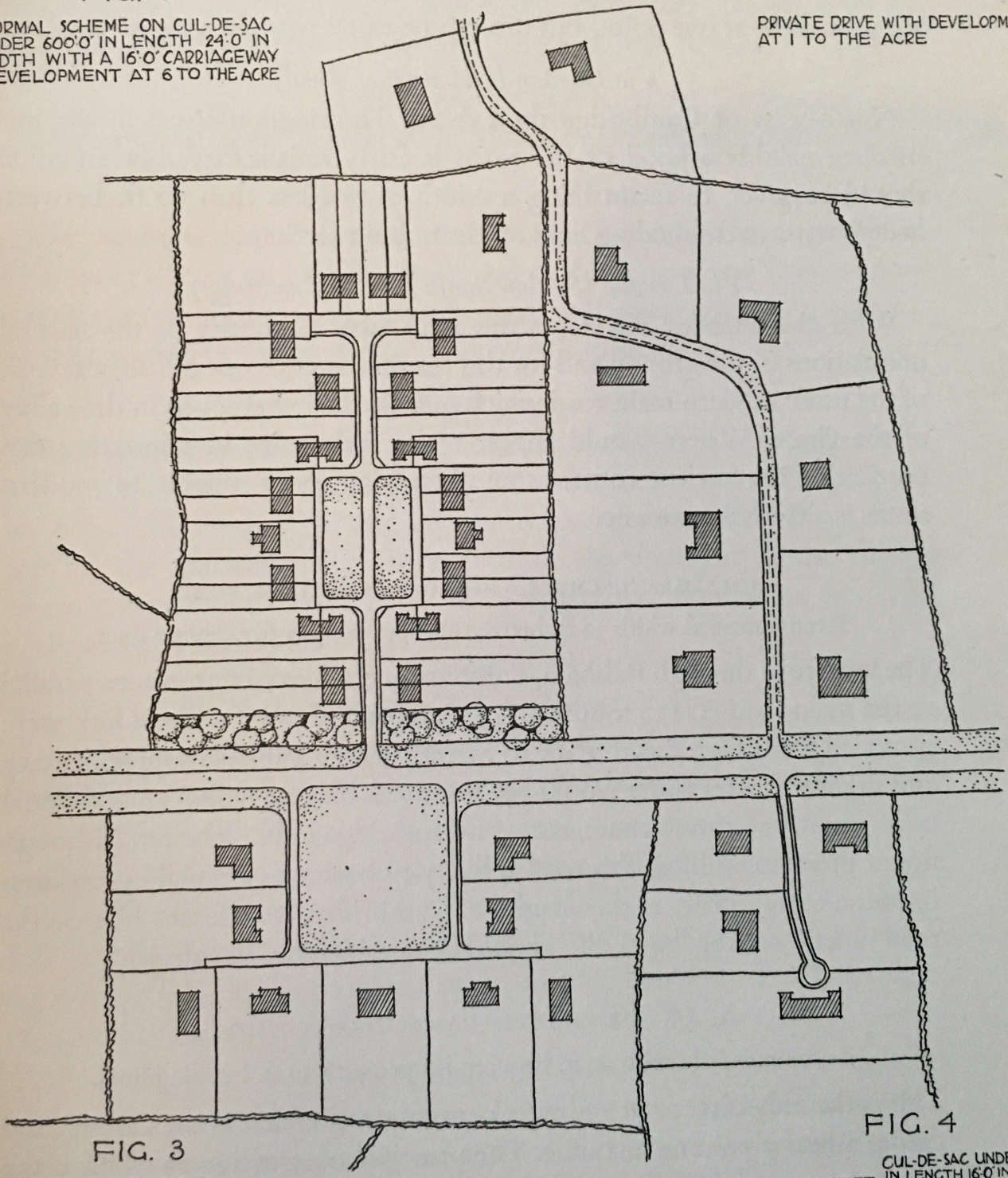


FIG. 3

DEVELOPMENT AT 2 TO THE ACRE ROUND OPEN SPACE WITH MINIMUM SERVICE DRIVE OF 14'0" IN WIDTH WITH 10'0" CARRIAGEWAY UNDER 500'0" IN LENGTH

FEET 100 50 0 100 200 300 400 500 FEET

FIG. 4

CUL-DE-SAC UNDER 200'0" IN LENGTH 16'0" IN WIDTH WITH 8'0" CARRIAGEWAY DEVELOPED AT 2 TO THE ACRE

and it is considerably more straightforward. The local road in question from Linton to Little Abington follows parallel to the existing main road, but keeps on the east side of the river. The road is in open country throughout its length, with no building development, and forms a very good junction with the main road at Little Abington. The only outstanding difficulty is the rather steep gradient at one point, but this can be eased without serious expense.

Via Devana (Old Roman Road)

North-west of Cambridge the existing Huntingdon Road in the immediate neighbourhood of the town is fairly satisfactory, but attention should be given to maintaining a width of not less than 60 ft. between hedges with 30 ft. building lines on the unbuilt sections.

Via Devana (Section South-East of Cambridge)

With characteristic directness this road takes no notice of the natural undulations of the ground and for this reason has gone out of use in favour of the more modern main road which follows the lower levels in the valley of the Granta. There would appear to be little value in reinstating this portion of the ancient route, as an alternative more suitable to modern traffic is already in existence.

HORSEHEATH–CHERRY HINTON–CAMBRIDGE ROAD

Recommended width 50 ft. between hedges with 25 ft. building lines.

The local road through Balsham, Fulbourn and Cherry Hinton runs parallel to the main road A. 132 south-east of Cambridge, and if a direct link were provided from Horseheath Park to Streetly End a valuable supplementary and slightly shorter route would become available, providing an additional cross-country communication between Cambridge and Colchester. Although not at present classified, this road is likely to become of rapidly increasing importance, especially in the vicinity of Cambridge. At Cherry Hinton the road junction at the "Old Pit" should be considerably improved.

A. 45. NEWMARKET–CAMBRIDGE–ST NEOTS

Recommended width 60 ft. between hedges with 30 ft. building lines.

This is the only direct east and west communication across the County and carries a heavy volume of traffic. The principal obstruction to traffic is the

town of Cambridge itself, but this will largely be remedied by the proposed Ring Road, which will enable traffic to skirt round the north of the town.

Newmarket Heath

The visibility at the junction of the roads at the Devil's Ditch requires consideration, and it is desirable that no building shall take place on the acute triangle between the two main roads (A. 11 and A. 45).

Bottisham by Swan Inn

The easing off of the corners in the village of Bottisham is desirable.

Madingley Road to St Neots

The road junctions at Coton and at Caxton Gibbet should be protected by improvement and building lines, and in the former case detailed consideration should be given to provide a safe and efficient junction with the western section of the proposed Cambridge Ring Road.

Eltisley By-pass

To improve the alignment of the existing road and to avoid the scissor junction in Eltisley, a new link is proposed north of the village. The proposal has been fully worked out and the owner has expressed his willingness to provide the necessary land. In any future development of the village, consideration should be given to the possible extension of the new link southwards to the Potton Road.

A. 603. CAMBRIDGE–BARTON–BEDFORD

Recommended width 60 ft. between hedges with 30 ft. building lines.

This road forms a serviceable route out of Cambridge to the south-west and, except in the Borough itself, very little development exists along it owing to the fact that it actually by-passes the villages on its route. It will be served by the western half of the Ring Road on the outskirts of Cambridge, and the new link across the fen, near the centre of the town, has increased the value of this road by forming a useful inner by-pass on to the Cambridge–Newmarket Road (A. 45).

Improvement in Barton

A possible straightening near the village of Barton has been considered, and in any case the awkward corners near this point should be removed.

A. 14. ROYSTON AND THE NORTH VIA PAPWORTH EVERARD

Recommended width 60 ft. between hedges with 30 ft. building lines.

This road, the ancient Ermine Street, forms the only direct north and south road in the extreme western area of the region. It is very direct throughout its length and practically nothing is necessary in the way of road improvements except at the crossings of A. 603 (near Wimpole Avenue), A. 45 (Caxton Gibbet) and B. 1040 (at Kisby's Hut). The road junctions at these points should be planned in detail, following the principles laid down in the circular on road junctions recently circulated by the Ministry of Transport. The necessity for this is emphasised by the fact that a petrol-filling station has recently been established on the west side of Ermine Street, A. 14, at the junction with the Eltisley Road, A. 45.

A. 601. BALDOCK–ROYSTON TO PAMPISFORD AND THE NEWMARKET ROAD (A. 11)

Recommended width 60 ft. between hedges with 30 ft. building lines.

In conjunction with the London–Newmarket Road (A. 11) this road forms a very useful cross-country route across the south and south-east of the region, leading direct from London to Newmarket and the east coast. Signs of development are taking place on the length following the county boundary between Baldock and Royston, and in this neighbourhood considerable areas of land are for sale for building purposes. Development is also taking place in the vicinity of Duxford aerodrome. It is therefore very essential that building lines should be laid down without delay. Improvements at junctions with other roads are necessary in certain cases.

Attention should be given to the road junctions at the Coach and Horses Inn; and at Whittlesford, near the level crossing, the road requires widening and straightening. A bridge over the railway is desirable, but not immediately necessary. Pampisford cross-roads have already been mentioned under A. 130.

A. 11. BISHOP'S STORTFORD–NEWMARKET ROAD

Recommended width 60 ft. between hedges with 30 ft. building lines.

The portion of this road within the County is part of the Icknield Way and is particularly good both as regards width and directness. Consideration

The Icknield Way—Pre-Roman

L. D. Pratt

Street Way—Roman Road

should, however, be given to the possibilities of providing a bridge over the railway at the level crossing at Six Mile Bottom. At Great Chesterford, just outside the county boundary, opportunity exists for a by-pass, and it is desirable that the co-operation of the Essex Authorities should be secured in this respect.

A. 142. NEWMARKET–SOHAM–ELY ROAD

Recommended width 60 ft. between hedges with 30 ft. building lines.

In conjunction with road A. 11, the Soham Road (A. 142) forms a valuable alternative route from the south, via Newmarket, to Ely, which would be increased in value if a by-pass to Newmarket were constructed on the north-west side of the town. The width of this road at present is approximately 46 ft., and in the vicinity of the town it would be valuable to secure a greater width between fences before any further building development takes place. In view of the congested state of this road and its present narrow width, building lines of a depth of 20 feet have been laid down.

Exning Improvement

An awkward corner exists on the east side of Exning village and this could be greatly improved by rounding it off on the east side. The West Suffolk Authorities should, however, be consulted on the points which are within their jurisdiction.

Soham Improvements

In the village of Soham the road has several awkward corners, particularly at the north end of the main village street. It is not considered that a by-pass to the village is justifiable, but much could be done by the provision of a short link cutting off the angle in the road at the north end of the main village street.

A detailed plan for a possible alternative road to the east of Soham has been considered, and it is suggested that in any further building developments in Soham a 60 ft. way to the east of the village should be kept free from building, to supplement and co-ordinate the local road system.

From a trunk road point of view, a minor improvement at the north end of the village is all that appears to be required.

B. 1368. BARLEY–FOWLMERE TO THE LONDON ROAD (A. 10)

Recommended width 60 ft. between hedges with 30 ft. building lines.

This road forms a very useful alternative direct route to Cambridge from the eastern districts of London via Ware. It is at present comparatively little used by traffic, but its potential value, if improved, would be considerable, and it is understood that the raising of its status to a class "A" road is already receiving attention.

Coach and Horses Cross-roads

This junction should be planned in detail, and protected by building and improvement lines as already suggested (see A. 601).

Fowlmere By-pass

A considerable improvement of this road would be effected if a by-pass to Fowlmere were provided, as the awkward bends in the road at this point cause a considerable loss of speed and are a possible danger.

Improvement at Newton

An improvement in the village of Newton can be effected by the laying down of improvement and widening lines at the bends near the village and by a short length of new road on the east side.

B. 1379. GREAT CHESTERFORD TO GREAT SHELFORD

Recommended width 60 ft. between hedges with 30 ft. building lines.

Although at present a minor road, this route, following the line of main railway and the Cam valley, has considerable possibilities as an industrial service road, supplementing the main Sawston Road (A. 130).

In any local planning schemes, consideration should be given to the following:

(*a*) The provision of a new link at Ickleton, avoiding the village; an improvement at the junction with the road to Coppice Hill has already been effected.

(*b*) An improvement of the district road from Duxford to Whittlesford, this road being more direct than the classified road.

(*c*) An improvement of the district road from Little Shelford to Hauxton, linking up with the London Road.

B. 1052. LINTON TO BRINKLEY AND B. 1061

Recommended width 60 ft. between hedges with 30 ft. building lines.

This road is not very serviceable for through traffic but, in conjunction with the following road (B. 1061), it supplements the London–Newmarket Road as a direct way to Newmarket via Saffron Walden, and at certain times of the year is likely to carry an appreciable amount of traffic. Much can be done to improve the construction of this road by additional straightening and improvement of corners, and recommendations are made that the following improvements should be incorporated in any town planning scheme for this area, although they cannot be regarded as of major county importance:

(*a*) A new link at Balsham.
(*b*) A new link at Weston Colville.
(*c*) A new link at Willingham Green.

B. 1061. BURROUGH GREEN TO NEWMARKET

Recommended width 50 ft. between hedges with 25 ft. building lines.

This road could ultimately be generally improved with advantage, but the rather awkward level crossing to the south of Newmarket constitutes a difficult point. Provision for an ultimate general widening should be made with minimum building lines of at least 20 ft.

B. 1063. SOUTH-EAST FROM NEWMARKET

Recommended width 50 ft. between hedges with 25 ft. building lines.

Although only a few miles of this road are in the County it is of regional importance, inasmuch as it forms part of a direct communication between Newmarket and Colchester. The tendency is for Newmarket to grow outwards along its frontages, and widening and building lines should be established. Possibly a minimum of 20 ft. would be adequate for traffic purposes, but 25 ft. should be aimed at from the point of view of amenities.

B. 1104. NEWMARKET–EXNING–BURWELL

Recommended width 50 ft. between hedges with 25 ft. building lines.

This road is of little importance as a traffic-carrying route, being only a link between Newmarket and Burwell. Except at its termination in Burwell

the road is wholly in West Suffolk, but for local reasons it would be very desirable to allow for improvements by establishing widening and building lines on the section in the region approaching Burwell. Minimum building lines of 20 ft. would probably be sufficient for highway purposes, but 25 ft. should be considered to secure amenity.

B. 1102. FORDHAM–SWAFFHAM PRIOR TO A. 45

Recommended width 60 ft. between hedges with 25 ft. building lines.

In conjunction with the Newmarket–Cambridge Road (A. 45) this road forms a useful way into Cambridge from the north-east. A general improvement throughout would be advisable, the details of which will need careful consideration with a view to the preservation of the many points of interest on the road.

Swaffham Improvements

Improvements are desirable at (*a*) Swaffham Prior, (*b*) Swaffham Bulbeck, in both of which villages the road loses direction. These should be the subject of detailed planning in connection with any local town planning scheme.

B. 1049. COTTENHAM–CAMBRIDGE ROAD

Recommended width 60 ft. between hedges with 30 ft. building lines.

This road is already considerably used, and the recent improvement beyond Cottenham to link with Wilburton will greatly increase its importance. This improvement will, however, necessitate further work on this road in the immediate future, and it will be essential to by-pass effectively Histon village.

Histon By-pass

Several alternative possibilities for a by-pass line have been considered, and the route suggested, as shown on the plan, lies to the east of the village, avoiding the level crossing by means of a bridge. To secure a reasonable gradient over the railway, it is desirable to extend the slope as far as possible both south and north of the line. The scheme decided upon is one to bridge the railway east of the village and away from the level crossing.

Cottenham Improvements

The road through Cottenham village is in the main sufficiently wide, but it may prove desirable to establish improvement lines near the bends in the road and to define building lines.

TREE-PLANTED HIGHWAYS

Formal Avenue—Exning Road

Planted margins—Icknield Way

J. F. A.

Hall Farm Link

Within the limits of the Borough, a valuable local improvement has been effected by the construction of a link from the Histon Road to the main Ely Road via Hall Farm.

B. 1050. EARITH AND LONG STANTON TO GIRTON LANE

Recommended width 50 ft. between hedges with 25 ft. building lines.

Apart from a general improvement at corners, the outstanding recommendations in regard to this road are as follows:

(*a*) Girton by-pass on the east side of the village.

(*b*) South of Long Stanton St Michael to remove the two right-angle bends.

(*c*) North of Long Stanton All Saints to improve the sharp corner at the approach into the village. A scheme has been prepared for a railway bridge avoiding the level crossing at Long Stanton, which would also improve the alignment at this point.

(*d*) Just east of Earith, to avoid the awkward level crossing and double bends near the bridge approach, a proposal has been worked out for a link between B. 1050 and B. 1085 (Haddenham–Earith Road) with a new bridge over the Old West River. The greater part of this proposal would lie in the adjoining county and it is recommended that the Isle of Ely authorities should be consulted on the matter, with a view to co-operation.

IMPROVEMENT OF LEVEL CROSSINGS

Foxton

On First Class Roads

(1) At Foxton on A. 10, Royston–Cambridge Road, the double level crossing adjoining the station is one of the most obstructive. The County Council have the question of improvement in hand, and a scheme has been evolved for bridging over the main road and diverting the local road to avoid a crossing altogether.

Milton Road

(2) On Milton Road, A. 10, the crossing of the Cambridge and St Ives branch line causes obstruction to traffic which is difficult to overcome. The volume of traffic on this road is, however, such as would justify an eventual scheme of bridging. The low under bridge at present existing cannot be considered as satisfactory.

Whittlesford

(3) At Whittlesford on A. 601, Royston–Newmarket Road, the disadvantages of the crossing are increased by the station and goods yards, the slope down from the west side and the group of buildings, including an hotel on the east side of the crossing where the road narrows. A bridge over at this point would undoubtedly involve compensation claims. In view of this, and the desirability of reconstructing Whittlesford Bridge over the River Cam, and the comparative narrowness of the section of the road between the level crossing and a point east of Whittlesford Bridge plantation, a short by-pass to the whole is indicated. A possible route for this is open on the south side of the station.

Six Mile Bottom

(4) At Six Mile Bottom on A. 11, Bishop's Stortford–Newmarket Road. The question of bridging this crossing is less complicated, as the road is all on the level, and the development at this point mostly congregated at the junction of A. 11 and the local road.

Long Stanton

On Second Class Roads

(5) At Long Stanton on B. 1050, Girton–Earith Road. The bridging of the crossing at Long Stanton Station will be a necessary part of the ultimate improvement of the road.

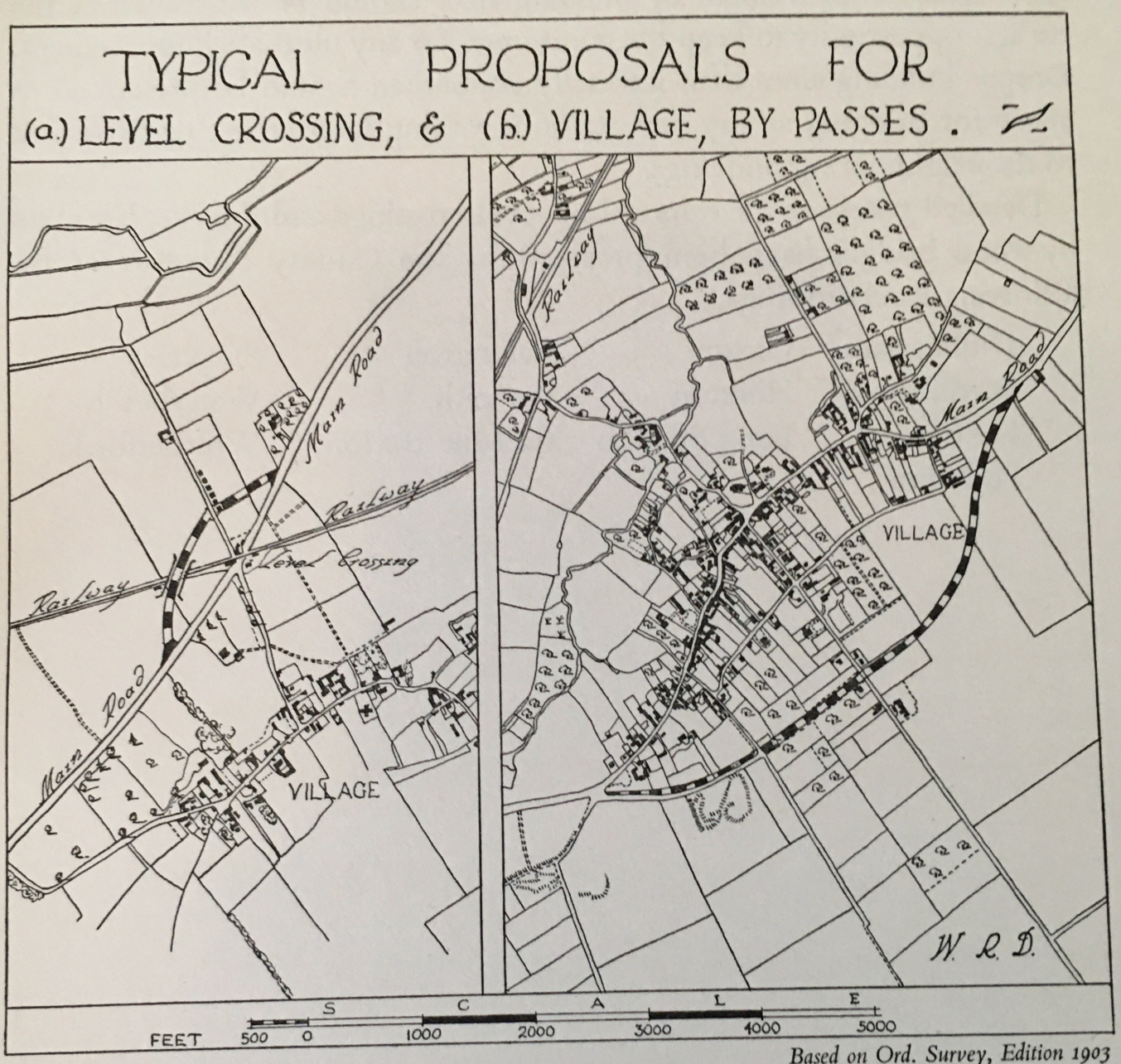
Histon

(6) At Histon on B. 1049, Cambridge–Cottenham Road. A very necessary part of the general improvement of road communications at Histon, involving the construction of a by-pass, is the avoidance of the level crossing, particularly as the improvement of the existing road beyond Cottenham to Wilburton and the Ely Road is now complete.

Fordham Station

(7) At Fordham Station on B. 1102, Stow-cum-Quy–Fordham Road. It has been recommended that this road should be generally improved to facilitate local traffic, particularly as bus services from Cambridge to Burwell already use this route. Among the necessary improvements the question of avoiding the level crossing at Fordham Station at the junction of the

Cambridge–Mildenhall and Ely–Newmarket line should be considered. Any building development at this point should be controlled with the object of keeping the site clear for ultimate bridging.



Based on Ord. Survey, Edition 1903

Dullingham

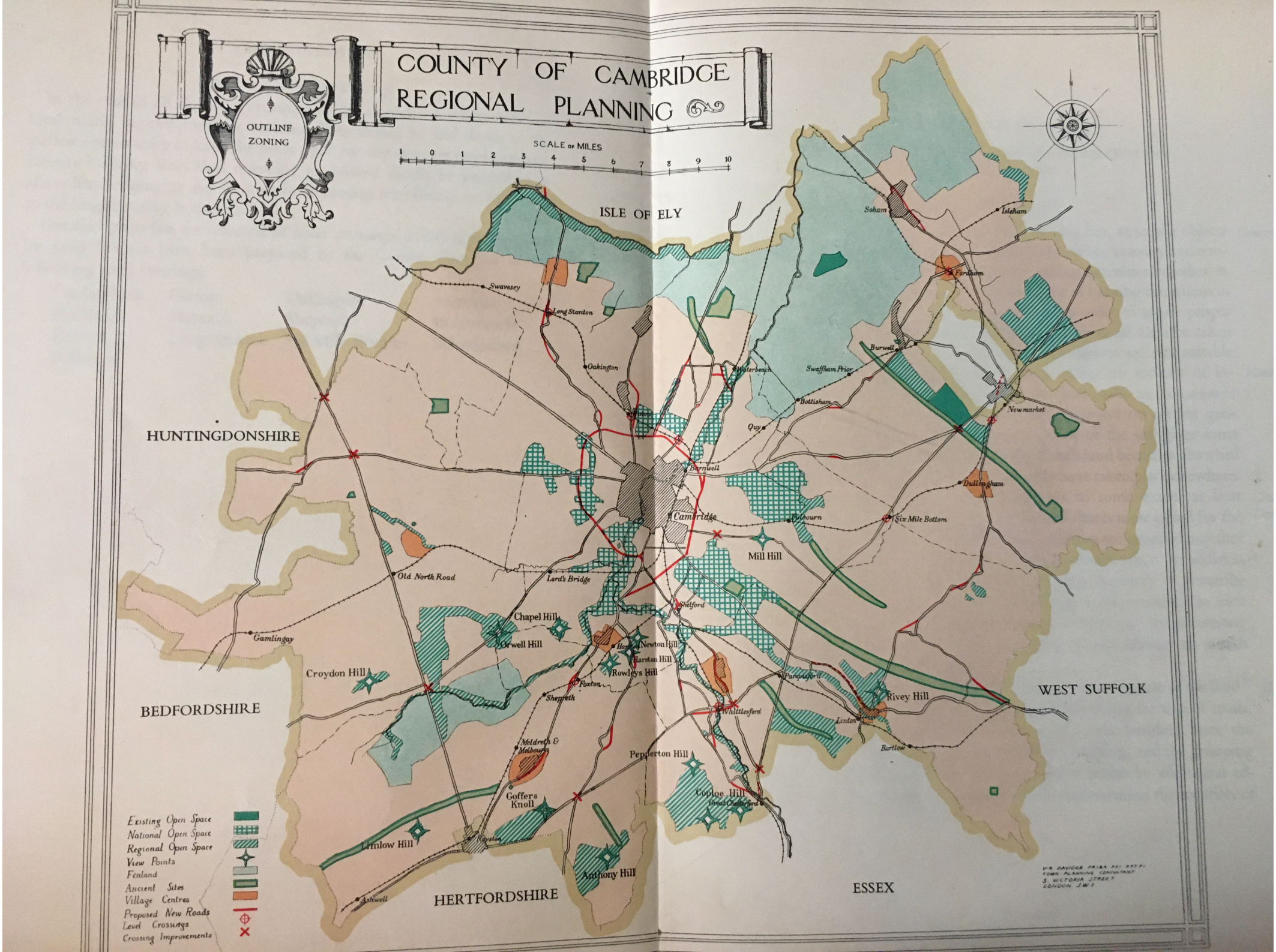
(8) Dullingham Road crossing on B. 1061. Although not on an important traffic route, the tendency for building development to take place in the south-west areas of Newmarket suggests that attention should be given to the establishing of building lines at the crossing to ensure that nothing shall take place likely to interfere with any possible future improvement.

GENERAL RECOMMENDATION

In the case of all the level crossings in the region, on either main or local roads, improvement or building lines should be laid down at the earliest opportunity to keep the point open for any ultimate improvement. Deeper building lines than normally established should be prescribed to allow for bridging at any time without causing interference or detriment to the neighbouring buildings.

Detailed plans for the removal of level crossings and their replacement by road bridges have been prepared by the County Surveyor at the following level crossings:

Dullingham	Girton	Oakington	Swavesey
Fordham	Hinxton	Shepreth	Waterbeach
Foxton	Long Stanton	Six Mile Bottom	Whittlesford
Fulbourn			


COUNTY OF CAMBRIDGE
REGIONAL PLANNING
OUTLINE ZONING
SCALE OF MILES
1 0 1 2 3 4 5 6 7 8 9 10
ISLE OF ELY
HUNTINGDONSHIRE
BEDFORDSHIRE
HERTFORDSHIRE
ESSEX
WEST SUFFOLK
Swavesey
Long Stanton
Oakington
Waterbeach
Soham
Isleham
Fordham
Burwell
Swaffham Prior
Bottisham
Newmarket
Quy
Barnwell
Cambridge
Dullingham
Six Mile Bottom
Mill Hill
Old North Road
Lord's Bridge
Shelford
Chapel Hill
Gamlingay
Orwell Hill
Newton Hill
Harston Hill
Rowleys Hill
Croydon Hill
Foxton
Shepreth
Whittlesford
Rivey Hill
Linton
Bartlow
Meldreth & Melbourn
Pepperton Hill
Coploe Hill
Great Chesterford
Goffers Knoll
Limlow Hill
Anthony Hill
Ashwell
Existing Open Space
National Open Space
Regional Open Space
View Points
Fenland
Ancient Sites
Village Centres
Proposed New Roads
Level Crossings
Crossing Improvements

CHAPTER IV

ZONING PROPOSALS—CENTRES OF DEVELOPMENT CHARACTER ZONES

ZONING PROPOSALS

General Note

In the words of the Town and Country Planning Act, 1932, the objects of a scheme are to secure "proper sanitary conditions, amenity and convenience...and generally of protecting existing amenities whether in urban or rural portions of the area". The evidence of existing conditions in the region, discussed in Part I, goes to prove that in order to secure proper sanitary conditions the topography of the land must in all cases be taken into account. It is clear that in certain areas conditions are not suitable for the introduction of building development, either on account of inaccessibility, the low-lying character of the land with its consequent drainage problems, or by reason of the lack of water on certain geological formations. Again, the productive quality of the soil gives some areas an additional value that is squandered if such land becomes absorbed by building development which might as readily have taken place elsewhere.

Natural basis

Character and Density Zones

The only available method of securing that to some extent at least building development shall take place on the land that is most suited for the purpose is to define character zones in which buildings are grouped together according to their user and are properly related to each other. In addition to allocating areas for specific purposes, it is also necessary to prescribe density zones governing the number of buildings to be permitted to each acre of land, both to secure "proper sanitary conditions" by preventing overcrowding, and to protect the amenities of any district in which development is likely to take place.

Use of Land

"Convenience in connection with the laying out and the use of the land" is provided for by the proposals in a scheme determining the sites of roads, road widths in relation to the probable use of roads, building lines, the proportion of a site which may be covered by a building, and the grouping of buildings according to their character. There is also an additional advantage in making zoning provisions which predetermine the location of

various forms of building development. Knowing in general terms what may be anticipated, it will be possible to concentrate public services and provide supplies at cheaper rates.

PROPOSED CENTRES OF DEVELOPMENT

This suggests the desirability of determining at which points in the region it would be advisable to concentrate on encouraging collective development and so lessen the present tendency to build at random. The obvious sites to select are those where a village is already in existence to form a core of civic and historical interest, served by good road communications and rail facilities, and if possible already provided with the elements of a drainage scheme, water and electricity supply, with other all-important assets such as educational facilities. The existence of these services forms a useful basis on which to work out a future scheme of development.

Selection of Villages

In selecting which villages are most suited for such a purpose consideration should be given to their geographical position in relation to Cambridge, which is the vital centre of development in the region. As far as possible they should be fairly equally distributed around the Borough at an average distance of not less than about six miles, though the actual distance must depend upon existent circumstances. Each satellite should, as far as possible, be complete in itself, having its own social, commercial, industrial and residential centres, and be planned to allow for expansion to provide for a given future population.

The effect of such a policy would be to set a limit to the ultimate extension of Cambridge, so that the town would not be continually surrounded by a deep belt of new development over land which should, in the interests of the County as a whole, be reserved as a relatively open space to safeguard the amenities of the town in perpetuity. New development should, as far as possible, be deflected to the chosen centres in the under-populated rural areas where modern convenience and recreational facilities had been made available. Until a policy something on these lines is adopted there is no inducement to offer general development which will prevent it from accumulating on the outskirts of Cambridge to the detriment of the town.

Development on "Garden City" lines

The previous powers under the Town Planning Act providing for the promotion of development on "garden city" lines are now superseded by

the Town and Country Planning Act, 1932, and it is now possible for any local authority, including the County Council, acting singly or jointly, to purchase and develop land on these principles, subject to the approval of the Minister of Health. The possibility of exercising these powers should be kept in mind when considering any proposals for the future development of the region, such as drainage and water-supply schemes. An example of what can be done in this direction is illustrated at Papworth village settlement, which, though supported voluntarily and limited in range, follows these basic principles.

Papworth Village Settlement

Taking into consideration existing conditions and possible future resources and contingencies, it appears that the following villages might reasonably be regarded as suitable for developing on the above lines. The list is suggestive only and must not be regarded as exclusive. The order in which they are given is that of precedence in which they might be planned for and carried out:

(1) Sawston
(2) Burwell, Soham and Fordham
(3) Harston
(4) Melbourn
(5) Willingham
(6) Linton
(7) Dullingham
(8) Bourn

SAWSTON

Situation. The village is between six and seven miles from Cambridge, situated on A. 130, the Cambridge–Saffron Walden Road, just north of its intersection with A. 601, the Royston–Newmarket Road. Main road communications are therefore good, particularly when supplemented by the proposed Sawston by-pass and improved local roads which should be provided for in any detailed plan. Railway facilities exist in the main L.N.E.R. line to Cambridge with a station at Whittlesford, serving Sawston, and the Cambridge, Haverhill and Sudbury branch line, between which two lines the village lies. Whittlesford Station is some distance from the centre of the existing village, and it would be an advantage to remove it farther north up the line as part of any detailed plan for this neighbourhood, both to make it more accessible to Sawston and to relieve the obstruction caused to traffic on the Newmarket Road at the level crossing necessitated by the lengthy closing of the gates.

Industrial Sites. Goods traffic is provided for at Sawston siding, which could readily be extended to increase transport facilities for industries. Satisfactory sites for these are available on the land adjoining the main line, particularly on the west side in the vicinity of Sawston Paper Mill, where water is available from the River Cam. Already several industries are

Based on Ord. Survey, Edition 1903

established in and around the village, which is growing outwards in a westerly direction over the land lying between the main road and the main line.

Public Services. The first of the Education Committee's village colleges is already open, providing educational facilities for the surrounding area. A supply of electricity is also available. The water supply from local wells is reasonably good for present purposes, but a mained supply would be one

of the first requirements of a well-considered plan of development, together with a main drainage system.

Topography. The site of the village is on the edge of the chalk formation as it merges with the gravel and alluvium deposits in the Cam and Granta valleys. The general level is between 70 ft. and 80 ft. above O.D., which is reasonable for this region although by usual standards low. Geographical interest is provided by the River Cam, which follows a northerly course through water meadows and alder thickets to the west of the village, by the plantations surrounding the villages of Pampisford and Whittlesford, and by Babraham and Pampisford Hall Parks about two miles away to the east.

Future Development. Existing conditions have naturally combined to make Sawston an industrial satellite of Cambridge. As many of the requirements of a centre developed on these lines are already in existence, and some plan is an outstanding necessity to regulate the new development that is taking place, there is much in favour of a comprehensive scheme of development for the village which will concentrate the development there rather than along the frontage of the main road, as is now happening on the section between Trumpington and Great Shelford.

BURWELL, SOHAM AND FORDHAM

General Particulars. The village of Burwell lies at the intersection of three class "B" roads—B. 1102, leading from Cambridge through Swaffham to Fordham and into Suffolk; B. 1103, connecting Burwell with Newmarket; and B. 1104, a link between. The distance to Cambridge is little more than ten miles, and approximately four to Newmarket. The village and the land lying eastward towards Fordham are therefore readily accessible by road from two important town centres, and if a few comparatively minor road improvements were carried out, including a more satisfactory termination of the north end of Broads Road, the existing road system would form a satisfactory basis for future extension, and for a new centre of development in the neighbourhood of the existing railway station and railway junction.

Industrial Sites. Railway facilities are provided by the Cambridge–Mildenhall branch line and by the Newmarket–Ely line, with the existing station at Fordham. Sidings for industrial purposes could, if required, be

Based on Ord. Survey, Edition 1903

readily provided where level sites are available for development of this character. Industrial development is at present limited to the chemical manure works and brick works situated to the north-west of the village on Burwell Lode and served by a light railway to the Ely–Newmarket branch line, and to the small lime works at High Town. Cement works were active until recently north-east of the village, but these are now closed and apparently unlikely to re-open. The material required for this industry is, however, available and future development of such works may take place.

Public Services. The locality is one that has been selected for the establishing of a village college to serve the north-eastern area of the County. Educational and recreational facilities will therefore presently be available.

Electricity supplies have recently been made available by the distributing Company serving Soham and Fordham from Ely, and the area of distribution has also been lately extended to cover Burwell. Existing water supplies are mainly confined to private wells, but the possibilities of extending the Soham mains to Fordham have been considered practicable, and it would appear possible to supply Burwell either from this source or from Newmarket if the cost of a new water works should prove prohibitive. The natural water supply is plentiful from the fen area, which is seamed with lodes and land drains leading to the River Cam.

Drainage is a problem which will need careful consideration in conjunction with the provision of a water supply, as it is now common for house drains to connect with surface drains and discharge into streams.

Topography. The site is on the edge of the chalk, where it terminates on the surface against the peat and alluvial deposits of the fens. As previously mentioned, Burwell is a fen-line village following the line of 50 ft. contour. It clings to the edge of the shelf of higher land above the fens, and the levels vary between 20 ft. and 70 ft. above O.D. Although geographical features are lacking, the site has an interest of its own due to the spacious surrounding levels and scarcity of trees. There is historical interest provided by the Priory and Castle sites in the village and the Devil's Dyke to the south-west.

Future Development. In view of its situation in relation to Cambridge and Newmarket, a new centre in the suggested position is capable of being developed as a satellite of either or even of both towns, and although it may not have such a defined potential industrial future as Sawston, it is undoubtedly

suitable as a market centre for the produce of surrounding areas, combined with industrial and residential development.

HARSTON

General Particulars. Harston is situated on the Royston–Cambridge Road, A. 10, near its intersection with the alternative route from London via Barley and Fowlmere, B. 1368, and is five miles from Cambridge. In addition to the main roads there is a useful cross-country road intersecting A. 10 at right angles in the centre of the village and leading eastward past the station. The main lines of a satisfactory road system are therefore already in existence, only requiring a possible new link south-east of the village to avoid the sharp bends on the main road.

The Cambridge and Hitchin branch line serves the village from Harston Station, in the vicinity of which suitable sites are available for any industrial development between the two roads to Newton.

Industrial Sites. There are no industries in the village, but cement works are developing rapidly on the Barrington–Haslingfield Road at the foot of Chapel Hill less than two miles away. These works have a light railway down to the branch railway above Shepreth. The cement industry appears to be making considerable progress in this vicinity, and in view of the extent of modern demands it may be anticipated that further works will be established.

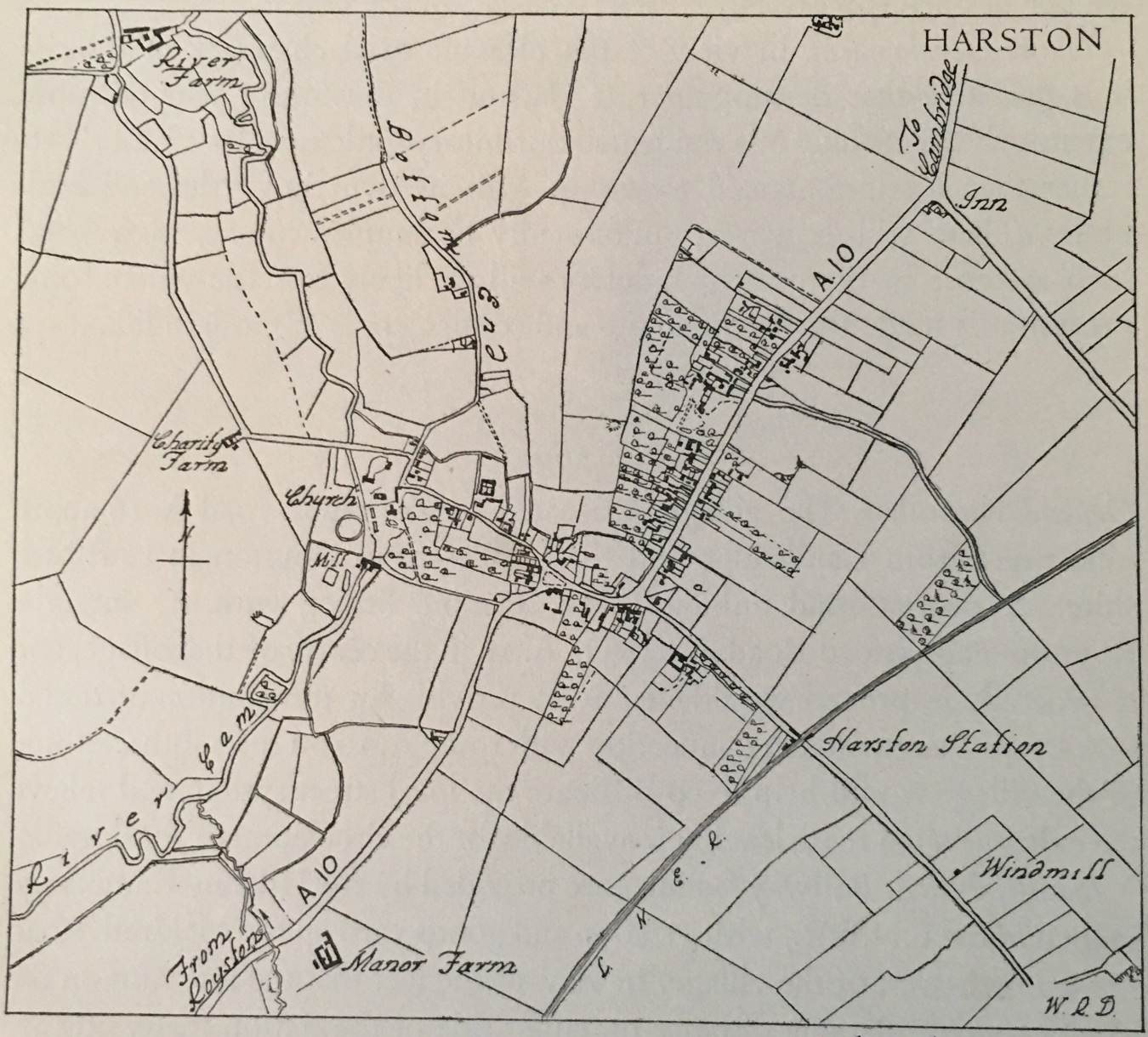
Little new development has taken place within the last few years, but the position of Harston on the main London–Cambridge Road is such that it may take place at any time, particularly as public road transport facilities into Cambridge are increased.

Public Services. A village college is ultimately to be provided at Harston to serve the surrounding villages, which will give local people and industrial workers an object in settling there.

Electricity supplies are due to be made available, plans for distribution having been prepared by the Beds., Cambs. and Hunts. Electricity Company. The water supply, obtained from deep wells and pumps, though plentiful and of good quality would not as it stands be capable of providing for much increased development. A natural supply is available from the two branches of the River Cam which converge about two miles north of

the village, but as pollution is likely under present conditions, here, too, a well-considered drainage scheme would be a necessary part of a scheme providing for development.

Topography. The soil is chiefly chalk marl with patches of gravel and sand on the site of the village, bordering on an alluvial deposit adjoining the river,



Based on Ord. Survey, Edition 1903

which merges into gault beyond. Harston is a typical valley village in that it is situated on the slightly higher and therefore dryer ground adjoining the river. The levels vary only between 40 ft. and 50 ft. above O.D. The surrounding country is more interesting than in the case of Sawston, owing to the more hilly formation of the ground. Newton Hill, Harston Hill, Rowley's Hill on the east, approximately 100 ft. high, and Chapel Hill on

the west, rising to 215 ft., provide view points over the surrounding country, thus making the preservation of their open character a matter of regional importance. There is also the pleasant pastoral character of the river-side area, running in a belt north and south, west of the village, and as this is liable to flooding it is included as a definite reservation in the regional scheme of open spaces.

Future Development. In view of the pleasant rural character of the site it is probable that development at Harston in the future will be more extensively on the lines of a residential dormitory settlement for Cambridge, rather than a self-contained township with its own industries and businesses. These will, however, undoubtedly be supplementary, as workers such as those in the cement industry will be likely to settle where some provision is made for the amenities and conveniences of modern life.

MELBOURN

General Particulars. The village is situated on the trunk road A. 10 about nine miles from Cambridge and three miles from Royston in Hertfordshire. A district road linking A. 14, Ermine Street, with A. 601, the Royston–Pampisford Road, intersects A. 10 in the centre of the village, and if generally improved would effectively provide for distribution of traffic.

A by-pass suggested in connection with route A. 10 on the south-east side of the village would help to co-ordinate the local street system and relieve the existing main road, leaving it available for the circulation of local traffic.

Industrial Sites. Railway facilities are provided by the Hitchin–Cambridge branch of the L.N.E.R., with a station and goods yard on the Meldreth Road to the north-west of the village. In view of the fact that the line runs on the level for a considerable distance on either side of the station many sites are available for the establishing of suitable industries, particularly south of the station, where road access is also provided by Bury Lane leading direct from the station to the main Royston Road. The Portland Cement industry is developing fairly extensively in this vicinity, and associated industries may develop. Brick-fields are also worked, and there is a considerable amount of fruit-growing, the interests of which are likely to be adversely affected if other industrial development is not controlled.

Public Services. Electricity supplies are available from a sub-station and low-power underground cables in the village, and gas works formerly established are not now in use.

The water supply is at present from wells, which are good and adequate, but a mained supply would be a definite asset.

Based on Ord. Survey, Edition 1903

Topography. The site of the village is wholly on chalk marl, which extends over a wide surrounding area. The general level of the existing village is about 80 ft. above O.D., rising to 100 ft. at the south end of the village.

Geographical interest is provided by a tributary of the Cam, which rises at Melbourn Bury, and by the surrounding orchards.

There are many interesting and architecturally good buildings in the

village, which has a particularly pleasant character, and Melbourn Bury, Sheene Farm and the Church are outstanding.

Future Development. As a residential centre the village would provide many amenities, and as an industrial centre could be successfully increased in importance, but it is essential that any industrial development is properly controlled to safeguard the present character of the village.

WILLINGHAM

General Particulars. The main road communication through the village is provided by the Girton–Earith Road, B. 1050, leading from Cambridge, eight miles away, to Chatteris. A useful cross-road leads west to St Ives by Over, and east to Cottenham by Rampton, where it connects with the Histon–Cambridge Road, which has recently been carried on northward towards Ely. The existing roads in the village provide a neatly planned system which could, if required, be effectively extended.

Industrial Sites. The Cambridge and St Ives branch line provides access to the village by rail from Long Stanton Station, roughly a mile south of the present village.

General industrial development is unlikely in close proximity to Willingham, which is engaged in the fruit-growing industry and nursery-garden cultivation, and is located in a central position in the fruit-growing area. Sites for fruit-preserving works and other industrial purposes could, however, be found in the neighbourhood of the station if required, but the character of any industry would require careful control to avoid any detriment to the fruit crops from ensuing smoke or fumes.

Public Services. Willingham is to be one of the educational and recreational centres for the surrounding area under the Educational Committee's scheme for establishing village colleges.

Water is supplied by the Willingham Water Company, whose works are close to the main road south of the village. Electricity supplies are not yet contemplated, but plans have been made for serving Cottenham shortly, and it should be a simple matter to extend supplies to Willingham.

Topography. The village is situated on a patch of old river gravel overlying the Oxford clay where it runs out into the alluvium deposits of the fens. The main part of the village is on the gravel 20 ft. to 25 ft. above O.D., and the

levels fall away to the fens northward, which do not average more than 13 ft. above O.D. The character of the surrounding country is level and low, and it has few defined features other than the extensive orchards and soft-fruit farms that give a special interest to the village, which is surrounded by them. Almost every available open piece of land in the village

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area is also planted with orchard trees, and definite open space reservations to add to the local amenities do not appear to be called for.

Future Development. The future of Willingham must obviously be closely bound up with the fruit-farming industry, and it is as a centre for collecting and dispatching the crops that the village can be chiefly developed. As such activities are seasonal it would, however, be necessary to establish

other branches of work, such as box- and basket-making and the manufacture of packing material, to keep the village fully engaged in the winter periods.

LINTON

General Particulars. The village is situated close to the Essex border, ten miles from Cambridge, at the intersection of the Cambridge–Haverhill Road, A. 132, and the Saffron Walden–Newmarket Road, B. 1052. A proposal has been made for the improvement of the district road between Little Abington and Linton which continues south-eastwards to Bartlow. The village therefore occupies a position at the point of convergence of a group of radial roads, which is unusual among the village centres in the region.

Industrial Sites. A station for passenger and goods traffic is conveniently situated close to the village on the Cambridge–Haverhill branch line, and potentially valuable sites for industries of selected character exist between the railway and the main road and adjoining the goods station. There are mills established along the Granta, but apart from this the village has no industrial pursuits at present other than agriculture.

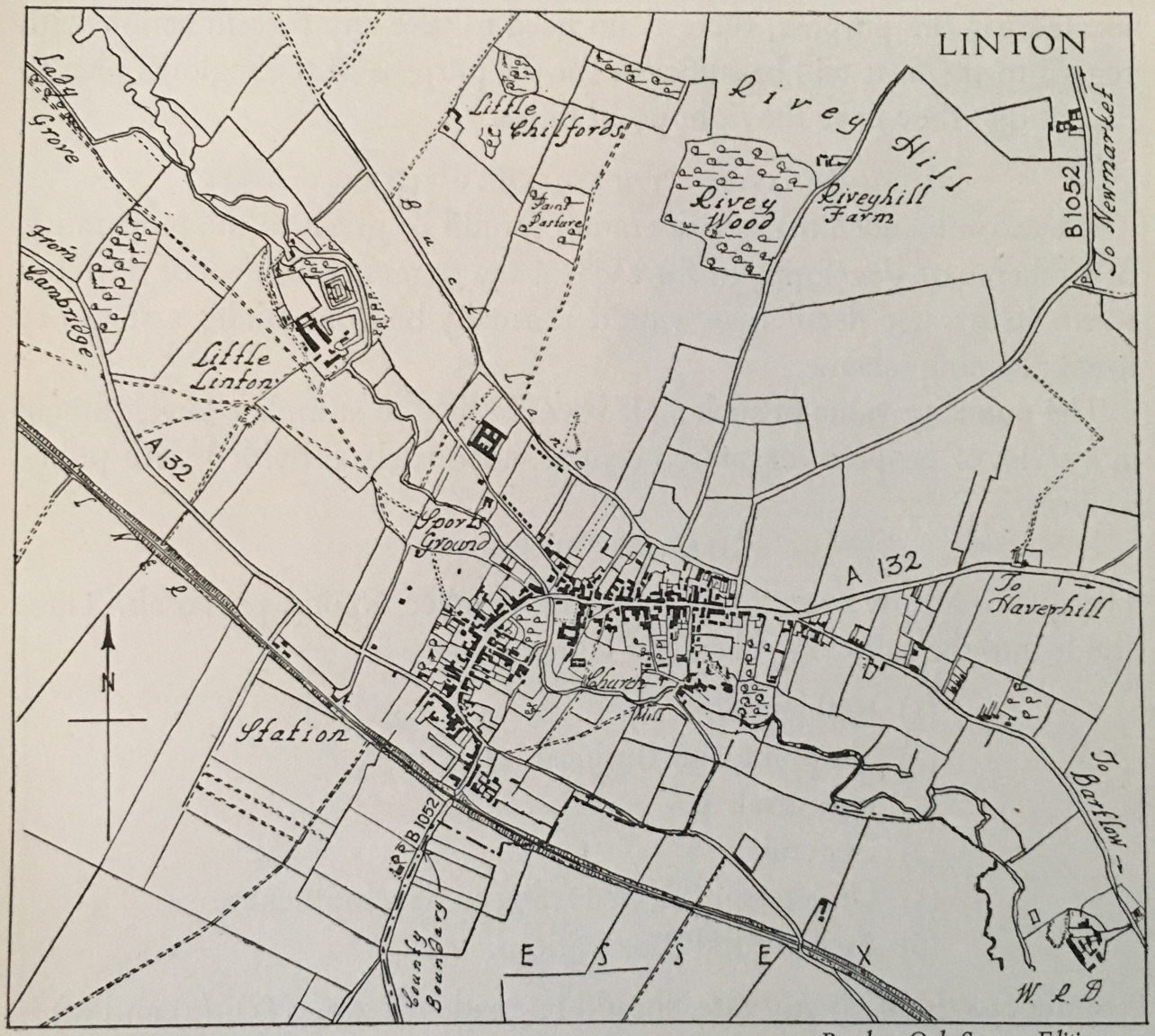
Public Services. A village college is to be established here sometime in the future; and although no scheme has yet been put forward, it may be anticipated that in company with other villages in the region a supply of electricity will be distributed. The existing water supplies, while being better than those in the neighbouring parishes of Linton Rural District, are inadequate as they stand at present for much further demand. The River Granta should be capable of supplying additional water in sufficient quantity if it can be rendered pure. To secure this an effective main drainage scheme would be required.

Topography. The chalk formation underlies the village and constitutes the higher ground. In the river valley there are deposits of gravel and sand, and a thin strip of alluvium along the river banks. The levels vary from 168 ft. on the side of the hill to 121 ft. above O.D. at the bridge over the river.

Natural beauty is given to the site by the formation of the land, which rises high above the village to the north at Rivey Hill and drops into the narrow valley of the Granta. Reservations of open spaces are proposed as part of the regional open space system covering Rivey Hill and Furse Hill

above the Abington–Linton Road, and the water meadows of the Granta. If these proposals were carried out the charm of the village, partly due to the character of the surrounding land, would be protected in perpetuity.

Future Development. The village itself is one of the most picturesque in the region, and the white plastered cottages with thatched roofs are in a



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good state of preservation, thus making an attractive centre for any new residential development that may be located here.

The village is one which is more likely to attract development for residential purposes rather than for business or industry. The future of the village appears to be largely dependent on its further development as an agricultural centre or dormitory community, for either of which groups of population it would provide a fitting centre.

DULLINGHAM AND BOURN

General Particulars. These two remaining villages, which are mentioned as being suitably located for development as village satellites, are as yet far removed from the tide of modern development, and although they have many of the essential elements required, and are geographically well located for the purpose, there is no need to take any present action with regard to them. It will be sufficient for the purpose of the regional plan to record that they have the right possibilities.

RECOMMENDATION WITH REGARD TO VILLAGE CENTRES

It is recommended that consideration should be given to the preparation of a scheme of development for each of the suggested centres of development, in greater detail than would normally be done under a statutory town planning scheme.

The publicity value of such a plan would help to stimulate development in a series of properly organised centres, adequately provided with public services.

CHARACTER ZONES

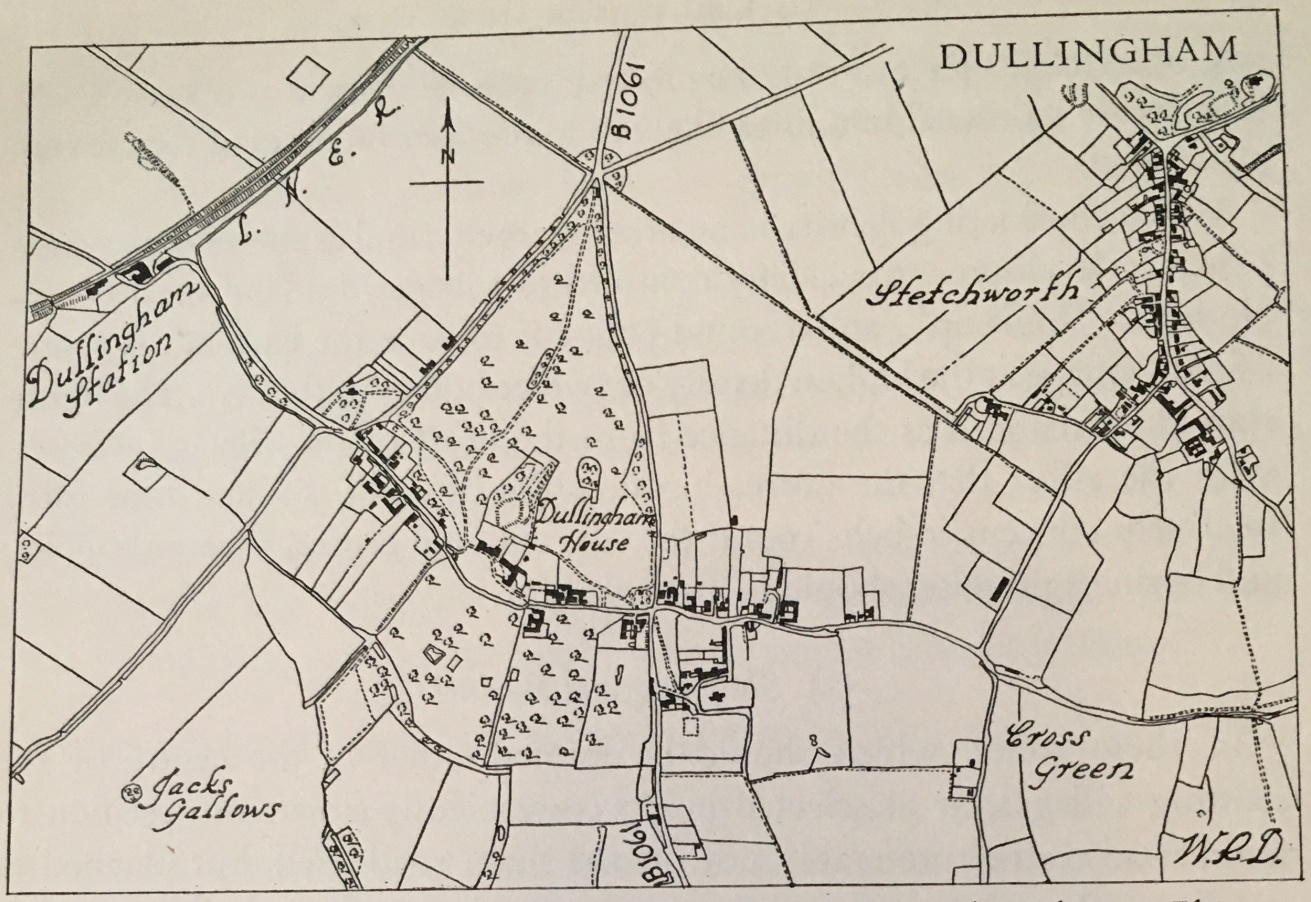
The question now arises as to the more detailed zoning proposals. These divide into the following character zones:

(1) Residential.
(2) Shopping and Business.
(3) Industrial.
(4) General.
(5) Undetermined, or Deferred development areas.
(6) Agricultural Reservations.

Some provision, at any rate, should be made for zones (1), (2) and (4) in every village and over an appropriate area of surrounding land, and for zones (1), (2), (3) and (4) in each of the centres suggested for development as satellites.

(1) *Residential*

In the areas allocated primarily for residential purposes houses may be built anywhere without special consent of the Council, provided the provisions as to the density prescribed are complied with, and a proportion of other residential buildings may reasonably be expected. Buildings of



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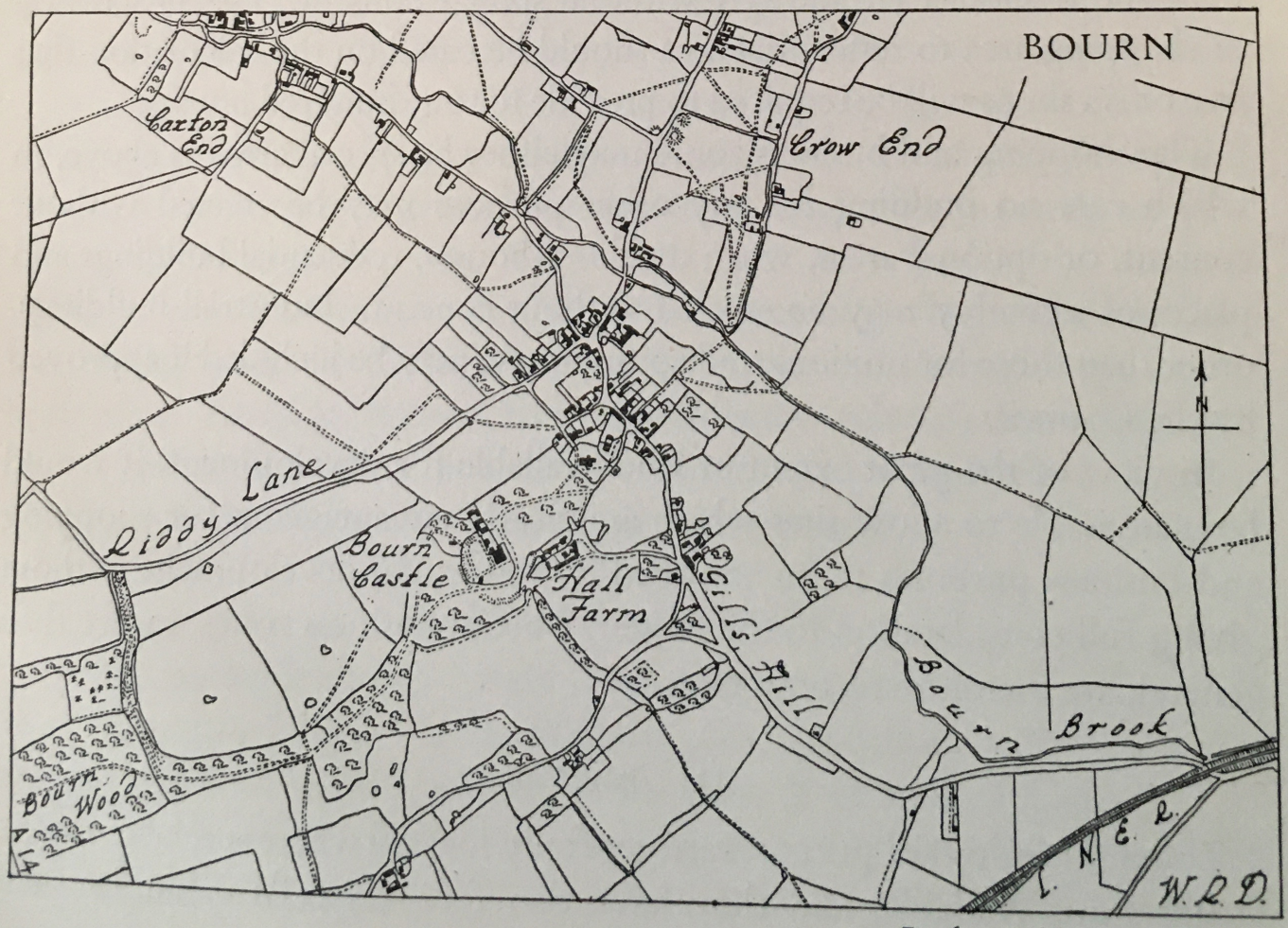

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any other character can only be erected if special consent is obtained, and in any case industrial buildings likely to injure the amenities of the area are prohibited.

Built-up areas

When considering density in an area as largely rural as this region, where existing development is chiefly confined to villages, no land need be excluded as "built up", and a sound policy is to zone the land in the centre of each village at the highest density of twelve houses to the acre. The figure should be reduced as the distance from the heart of the village increases, with the effect that the decreasing densities of eight, six and four form relatively concentric belts round the concentrated centre, where shopping and business premises should be provided for.

(2) *Shopping and Business*

Service Roads

In these zones, which should be located either in the centre of the existing villages, or at selected points conveniently situated in relation to main road traffic, preferably not on the main road itself, but planned as a definite shopping centre with separate service road, no buildings other than shops should be allowed without special consent. The proportion of shopping area to residential area should be based on the calculation that five or six shops will be required to provide for one hundred houses.

Definition of Shopping and Business Zones

The shopping and business zones may either be special areas as above, in which case no building for any other purpose may be erected without consent, or optional areas, when dwelling-houses, residential buildings and places of assembly may be erected without consent. Industrial buildings, other than those for noxious trade or industry, may be included if approved by the Council.

In view of the great extent of land available for development, it would be inadvisable to allow sites which are clearly advantageous for shopping and business purposes to be absorbed by residential development without giving full consideration to the matter. Special business zones, rather than general, are therefore recommended.

(3) *Industrial*

Definition of Industrial Area

Zones for industrial purposes are generally located where special transport facilities are available, and they have therefore a special value for such

purposes. They should be included in schemes as being primarily for industrial buildings and business premises, other buildings only being allowed by consent if the land does not appear to be required for the original purpose.

(4) *General*

Purpose of General areas

Where there is any doubt as to the advisability of defining specific industrial areas owing to the uncertainty that industries will settle there, or when dealing with built up areas where control over the user of buildings is desired, as can now be effected under the extended powers of the new Act, section 12 (*d*), general zones should be provided. These may be used primarily for *any* buildings as may be decided, other than for noxious trade or industry, for the erection of which consent must be obtained.

(5) *Undetermined, or Deferred Development Areas*

Deferred Development

It is frequently the case that it is difficult to foresee, with any accuracy, a future for certain areas of land. In these circumstances they may be zoned as undetermined, with a fixed density governing the number of buildings of whatever character that may be erected per acre. In these zones any residential or public buildings may be erected and, with consent, other buildings for any purpose. This is, however, not likely to lead to a concerted plan. Under the powers of sections 15 and 16 of the Town and Country Planning Act, general development may be temporarily or permanently restricted.

If temporarily restricted it is subject to the granting of a general development order when the Town Planning Authorities consider it is opportune to develop. Areas so reserved from immediate development are subject to review every three years, and may be zoned in the usual way if there is any clear tendency for development to be imminent.

(6) *Agricultural Reservations*

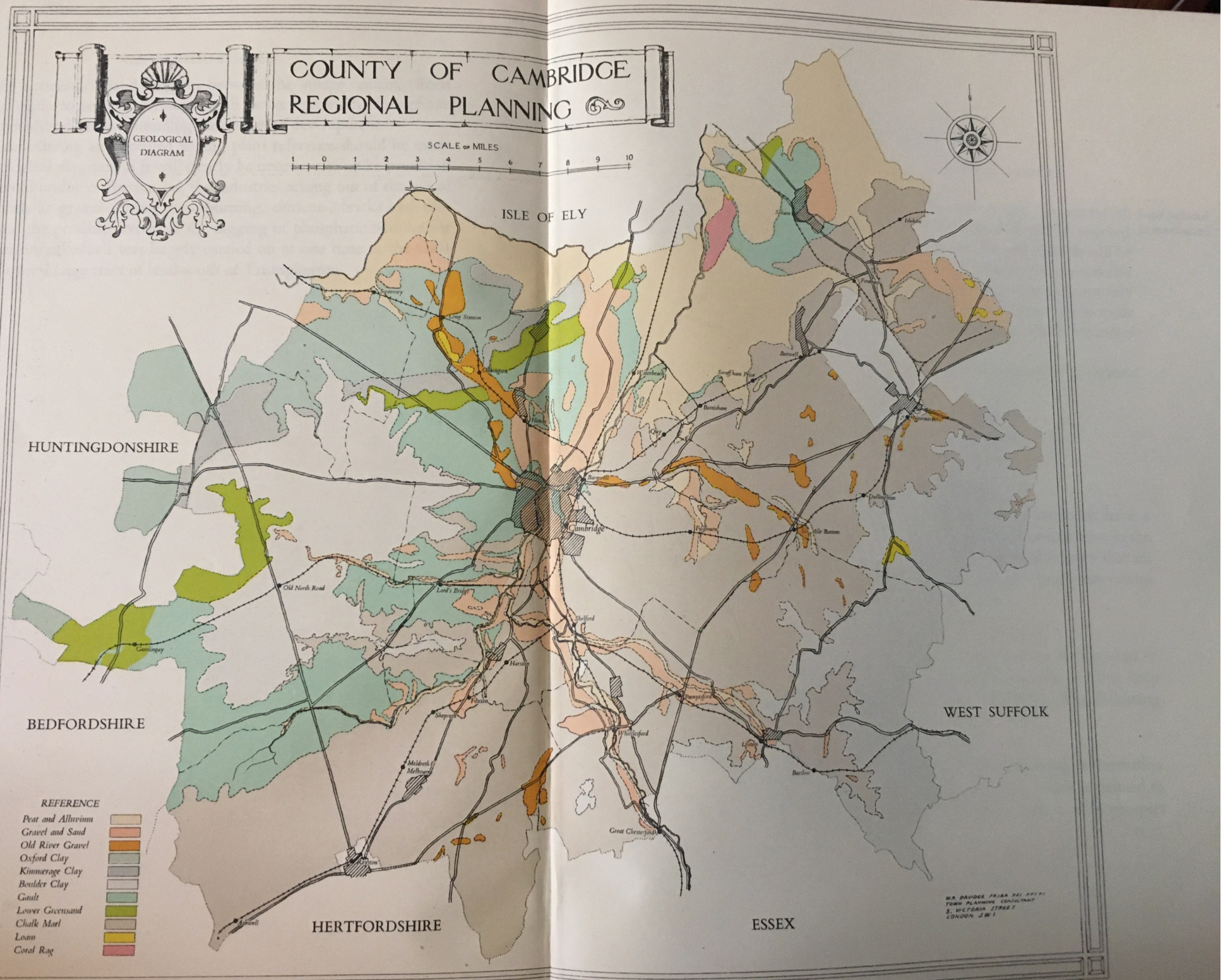
Zoning of open country

The remaining land may for the time being be regarded as an agricultural or a "Country House" zone, primarily for agricultural purposes or for houses with not less than, on an average, say, three acres of land.

It is recommended that, since the majority of the land which would ordinarily be included in an undetermined zone or deferred development

area is the agricultural land lying in between the village centres, efforts should be made to secure agreement with owners providing for definite belts of agricultural land surrounding the centres of development.

When considering any detailed zoning plans reference should be made to the geological diagram, as it will clearly be necessary to make provision for, and avoid undue restriction on, the industries arising out of the use of the soil, such as gravel-getting, lime-burning, cement-, brick- and tile-making, and the possible revival of the digging of phosphatic nodules for chemical manures, which was largely carried on at one time in the Cam valley and over a large tract of land south of Trumpington.


COUNTY OF CAMBRIDGE
REGIONAL PLANNING
GEOLOGICAL DIAGRAM
SCALE of MILES
1 0 1 2 3 4 5 6 7 8 9 10
ISLE OF ELY
HUNTINGDONSHIRE
BEDFORDSHIRE
HERTFORDSHIRE
ESSEX
WEST SUFFOLK
REFERENCE
Peat and Alluvium
Gravel and Sand
Old River Gravel
Oxford Clay
Kimmerage Clay
Boulder Clay
Gault
Lower Greensand
Chalk Marl
Loam
Coral Rag
Soham
Isleham
Fordham
Burwell
Swaffham Prior
Waterbeach
Bottisham
Quy
Newmarket
Barnwell
Cambridge
Fulbourn
Six Mile Bottom
Dullingham
Swavesey
Long Stanton
Oakington
Histon
Old North Road
Lord's Bridge
Gamlingay
Shelford
Harston
Foxton
Shepreth
Meldreth & Melbourn
Royston
Ashwell
Whittlesford
Pampisford
Great Chesterford
Linton
Bartlow
W.R. DAVIDGE FRIBA PPTPI
TOWN PLANNING CONSULTANT
5, VICTORIA STREET
LONDON S.W.1

CHAPTER V

OPEN SPACES—NATIONAL—REGIONAL—LOCAL

Land included in reservations

In addition to the relatively open zones surrounding the centres of development, certain definite areas of open space should be reserved for present and future recreational purposes. Among these should be included not only playing fields and public parks, but tracts of any remarkable country which is of scenic value, and likely to be enjoyed as such not only by local people but by any travellers in the County, and reservations made with a view to preventing building development on land which is unsuited for the purpose.

The open space proposals recommended for inclusion in the regional plan are divided into the following groups:

(1) Open spaces of national importance.
(2) Open spaces of regional importance.
(3) Open spaces of local importance.

NATIONAL OPEN SPACES

In the first group are included reservations to protect areas that have a world-wide interest. It may be said that such areas are non-existent in the region when comparison is made to the tracts of beautiful country that are world famous, but there is no doubt that the following proposed reservations are important to more than the regional community.

PROPOSED OPEN BELT ROUND CAMBRIDGE

In order to preserve any of the natural beauty of the background of the town a chain of reservations is proposed which would, in effect, keep a generally open belt of country encircling Cambridge. The following areas should be included:

Madingley Hill

(*a*) Madingley Hill—on the St Neots Road. The Cambridge Preservation Society has already taken action to preserve this area, which is claimed to provide the most beautiful views of Cambridge, with a wide prospect

towards Ely northwards across the fens and southwards to the hills above Haslingfield with Gog Magog Hills on the east. The Society bought, partly on loan, 380 acres of land, including the south side of Madingley Hill and the fields that lie below it, and held the land for a time on behalf of the public in the hope that the remaining sum necessary to complete the purchase would be subscribed. It is gratifying to note that through the assistance of the Pilgrim Trust, who made a grant of £13,000, this key section of the open belt is now definitely secured.

The area was in 1931 extended by the purchase, with money advanced by Professor Trevelyan, of the greater part of Coton Manor Farm, including the east and south slopes of the hill above. The War Office have purchased for a rifle range the stretch of land behind this from Barton Road to Whitwell Farm. The greater part of the Preservation Society's property here has been scheduled as agricultural space, by covenant with the Borough Council, leaving only small concentrated areas for possible future building, which would be carefully controlled.

Madingley Park

(*b*) Madingley Park—Madingley. If at any future time the park and surrounding fields are likely to go out of private ownership they should be secured as permanent open space, being a most important link in the chain of reservations and one of the most lovely private parks in the region. While in private ownership it is sufficiently safeguarded and no action need be taken, but if ever the site became available for general building purposes, and was so utilised, it would be an irreparable loss to the County.

Grantchester Meadows

(*c*) Grantchester Meadows—in the Cam valley. South-west of Cambridge an open reservation should be secured along the valley of the River Cam. The fields adjoining the river from Sheep's Green down to Grantchester should form a continuous open belt, as already Grantchester meadows are one of the most fully enjoyed stretches of rural country in the vicinity of Cambridge. In view of the fact that large areas of land are liable to flooding south of Grantchester, the reservation could readily be continued over Lingay Fen as far as Hauxton Mill Bridge, and negotiations

The Times

Grantchester Meadows

should be entered into with the owner of Trumpington Hall with a view to securing the ultimate permanent reservation of a large part of the park which contributes much to the beauty of the setting of Grantchester.

A very substantial portion of this area on the left bank of the river and both sides of the Grantchester–Cambridge Road has been sterilised by covenant under the Town and Country Planning Act, 1932, between the owners, King's College, Cambridge, and Merton College, Oxford, and the Borough Council. This is one of the first agreements in the country to be entered into under section 34 of the Act. The Cambridge Preservation Society, through a further gift of £10,000 from the Pilgrim Trust, was able to secure the completion of this agreement. King's College also undertook not to develop, except by University buildings, a further large area between the Cambridge–Grantchester and Grantchester–Coton Roads.

Further, the Society bought the first of the Grantchester Meadows which, though often inundated, was offered for building.

Gog Magog Hills

(*d*) The Gog Magog Hills—Haverhill–Cambridge Road. These form the finest hill land area near to Cambridge, and anyone knowing Cambridge is familiar with the spur of high land overlooking the town from about three miles away. A Roman road runs along the boundary of the wooded parklands of Vandlebury which crown the hills, on the summit of which is an ancient earthwork already scheduled for protection by H.M. Office of Works. Much of the open land is used as a golf links, and no great difficulty should be experienced in securing protection for the larger part at least of this site, which is known and appreciated widely, and has the advantage of having both a scenic and historic interest.

War Ditch

(*e*) War Ditch—Limekiln Road—Cherry Hinton. The open belt should be extended over the fields on Missleton Hill adjoining the Gog Magog Hills reservation. A fine view is provided from the ancient site of War Ditch in Limekiln Road over the chalk pits at Cherry Hinton and Cambridge, and any building development here would injure one of the chief amenities of the outskirts of the town.

Fens

(*f*) Fulbourn and Teversham Fens—east of Cambridge. The land immediately east of Cambridge is no longer high and does not provide view points, but along the course of Little Wilbraham River it is fen country which is to a large extent the view from the higher ground, and as such it is a valuable unit of land which should properly be included in the chain of reservations.

Cam Valley

(*g*) Valley of the River Cam—north-east of Cambridge. As far as possible the open fields along the banks of the River Cam should form a reservation. From Stourbridge Common, already a public open space, northwards to Clayhithe and Waterbeach an open belt could be secured, extending over Ditton Meadows, Chesterton Fen and Milton Fen and narrowing to a strip along the banks where the river passes Fen Ditton, Green End and Horningsea. As a recreational belt on the north-east side of Cambridge the reservation suggested would be of very great value, and at the same time the retention of the land still open would add greatly to the amenities of the town from the point of view of a large public, while preventing building development from taking place on land which is clearly unsuitable for the purpose.

PROPOSED RESERVATIONS AT NEWMARKET

The stretches of finely turfed heath, on which are run great racing events, have made Newmarket famous, and action should be taken to protect in perpetuity the land around Newmarket which has a definite and specific recreational value.

Location On the west side of the town the land lying between the Burwell Road and the Cambridge–Newmarket Road, covering Newmarket Heath and adjoining the Devil's Ditch, and south of the Cambridge–Newmarket Road over the golf links to the railway, should definitely be set aside as an open reservation. This area lies partly in West Suffolk and joint action should be taken with regard to this matter.

North-east of Newmarket, as far as the Chippenham Road, the country has the aspect of beautiful parkland, accounted for by the open stretches of turf and well-placed plantations of trees. A magnificent avenue leads across

The Times

Cam Valley, near Newnham Mill

this area to Chippenham Park at the extreme north-east corner of the tract, which should be preserved. Negotiations should be entered into with the owners with a view to considering the possibilities of realising this proposal.

RESERVATIONS OF THE FEN-LAND

Unsuitability of Fens for development purposes

The value of the fens for the purpose they are at present serving has already been emphasised, and in view of the unsuitability of their character for general building development there should be little or no difficulty in preserving them as an agricultural reservation. Their unusual individual character allows of their being regarded as remarkable country calling for preservation.

RESERVATIONS ADJOINING ANCIENT SITES

The present method of scheduling ancient monuments for preservation does not in any way secure that they are fully protected from the possible detrimental effect of modern buildings in close proximity to them. It is recommended that, in view of their world-wide historical value, ancient sites should be enclosed in reservations of such size as will permit of their being viewed from all angles without obstruction, and will prevent any disturbance of the land immediately adjoining them. The necessity for this is made evident by the fact that aerial photography is revealing details of archaeological interest in the vicinity of ancient monuments that have remained forgotten and unrecorded for centuries, not being apparent on the ground.

REGIONAL OPEN SPACES

In this group may be included areas which are likely to be increasingly appreciated by the regional community, either because they afford views over the adjoining country, or preserve the rural character of the rivers, secure the protection of country seats, or the preservation of the rather rare areas of woodland.

HILL RESERVATIONS

Although none of the hills rise to any very appreciable heights they frequently provide most pleasant views over the stretches of low land. The following are commended for scheduling as permanent regional open spaces to protect the view points, in addition to those already included as being of national importance:

Croydon Hill

(1) Croydon Hill, on the Hatley Road. A green escarpment facing south over the Cam valley to the undulating land round Steeple Morden and Thirfield Heath in the background.

Orwell Hill

(2) Orwell Hill, on Akeman Street. Providing a wide view both north-east to Cambridge over a level open agricultural area, and south-west over Orwell and the wooded surroundings of Wimpole Hall.

Chapel Hill

(3) Chapel Hill, on the Barrington Road. Rising above Haslingfield and providing a view northwards up the Cam valley to Cambridge.

Rowleys Hill

(4) Rowleys Hill, south of Harston, which with Harston Hill and Newton Hill forms a chain of view points between the Cam valleys.

Mill Hill

(5) Mill Hill, Fulbourn. Rising 100 ft. above the village and crowned by a wind-mill on the summit.

Rivey Hill

(6) Rivey Hill, Linton. Overlooks the village and the Granta valley between Linton and Abington, and with Furze Hill forms a beautiful sky-line above the river.

Coploe Hill

(7) Coploe Hill, south of Ickleton. Lies just within the boundary of the region and faces a range of undulating hill land in the west, terminating in Pepperton Hill near Duxford.

Anthony Hill

(8) Anthony Hill, Heydon. From Anthony Hill overlooking Heydon valley a fine stretch of hill land runs by Chishall Down to Clay Hill near the Barley Road, giving views on the north, east and west.

Goffers Hill

(9) Goffers Hill, near Royston, is one of the most important spurs of hill land in the region. From near the boundary on the Icknield Way an

The Times

Madingley Hill

extensive view can be had in all directions, and the area would provide a beautiful natural reserve for the town of Royston.

Limlow Hill

(10) Limlow Hill, near Litlington. Overlooks Ashwell Street and the group of old rural villages in the south-west corner of the County, and is the site of a tumulus.

RIVERSIDE RESERVATIONS

Not only to preserve the charm of the river meadows but also to assist in the control of the purity of the natural water supplies, reservations along the rivers are an essential part of the regional plan. The scheduling of such areas as open spaces in future town planning schemes is likely to be more readily accomplished under the provisions of the new Town and Country Planning Act, which allows for the preservation of low-lying and flood land without payment of compensation.

In the interests of the activities of the region it will probably not be practicable to schedule the whole of the lands adjoining rivers for reservation, as provision will need to be made for the establishing of mills and industries requiring supplies of water, but building development should not generally be allowed in the following areas:

(*a*) "The Dairies" in the Rhee valley.

(*b*) The river meadows between Barrington and the junction with the River Cam.

(*c*) The low-lying land in the Cam valley between Ickleton, Great Shelford and Hauxton.

(*d*) The low-lying land in the Granta valley from Linton to Stapleford.

(*e*) The valley of Bourn Brook.

The rivers in the fen-lands present an entirely different problem. Being raised with embankments above the surrounding land there are no defined areas suitable for scheduling as reservations, and the fact that practically the only well-drained building sites available are frequently on the river embankments makes the exclusion of buildings from such sites impracticable.

PARKLAND RESERVATIONS

The noticeable lack of natural woodlands in the region is greatly compensated for by the artificial planting of the parks of the larger country houses. These, therefore, provide a landscape feature which would not otherwise exist, and the preservation of the principal parks by negotiation with the owners is a very essential part of the regional plan. Those most outstanding and recommended for reservation as private open spaces are:

(*a*) Wimpole Park, Arrington. This would complete the largest suggested reservation in the south-west of the region, forming a continuous belt of open land from Ermine Street by Mare Way to Orwell Hill.

(*b*) Babraham Park, Babraham. The River Granta flows through the park, which is one of the most beautiful features in the valley and should form part of the reservation.

(*c*) Abington Park, Little Abington. This is also sited on the River Granta, and its preservation is a vital part of any scheme for protecting the valley from general building development.

(*d*) Cheveley Park, south of Newmarket. Surrounds the site of an old castle and has historic interest.

(*e*) Chippenham Park, north-east of Newmarket. Included as part of a reservation of national importance.

(*f*) Impington Park, Histon. In conjunction with the proposed aerodrome site adjoining King's Hedges Road the park fills the gap in the proposed chain of open spaces round Cambridge on the north side, where topographical interest is less outstanding.

(*g*) Cherry Hinton Hall Park, as part of the belt of open spaces round Cambridge.

Of the areas of woodland, Hardwick Wood is probably best known, and should be secured as a nature reserve. No specific recommendations are made with regard to other woods, but the fullest consideration should be given to the possibilities of securing their permanent protection, by negotiation and the use of the special appropriate powers in section 46 of the Town and Country Planning Act, enabling an authority to specify areas

PARKLAND RESERVATIONS

Wimpole Park

The Times

of woodland as areas to be protected under this section and providing for the replanting of felled areas in accordance with the practice of good forestry.

LOCAL OPEN SPACES

The character of the open spaces included in this group, providing purely for local requirements, is such as cannot be dealt with in great detail in a regional scheme. The size and location of such open spaces are best determined by the local administrative authority.

The types of open spaces included in this group are of a detached character, and may be either public or private according to the needs of the locality, but should include the following:

(1) Village and wayside greens.
(2) Playing fields.
(3) Golf courses.
(4) Parks.
(5) View points.
(6) Water-courses and their banks.
(7) Allotments.

It is recommended that in each locality sufficient provision of open space should be made to ensure that the proportion of permanent open space to the density of population does not fall below a minimum, in the case of public open spaces, of one acre for every 200 of the estimated population.

VILLAGE AND WAYSIDE GREENS

The majority of villages possess village greens of varying size, and as opportunity occurs additional village and wayside greens should be provided, as has already frequently been done in connection with housing schemes, such as those of the Chesterton Rural District Council.

PLAYING FIELDS

Although there are a number of playing fields owned by parish councils in the region, many of the parishes still require definite fields allotted for this purpose. In Chesterton Rural District proposals are made that the existing recreation ground in the parish of Barton should be extended; that the "Park" in the centre of Dry Drayton should be reserved for the purpose, and that a field should be provided on Cambridge Road in Great Shelford. The problem is probably more urgent in Chesterton than elsewhere.

GOLF COURSES

These will probably remain in the control of the private clubs, and negotiations should take place with a view to scheduling them as private open spaces if at all possible, as they add greatly to the amenity of a locality.

PARKS

Public parks are generally only required in neighbourhoods where building development is taking place, when provision should be made in satisfactory ratio to the extent of the development. Private parks should, if possible, be scheduled as private open spaces, in agreement with the owners, to supplement those recommended for preservation as regional open spaces.

VIEW POINTS

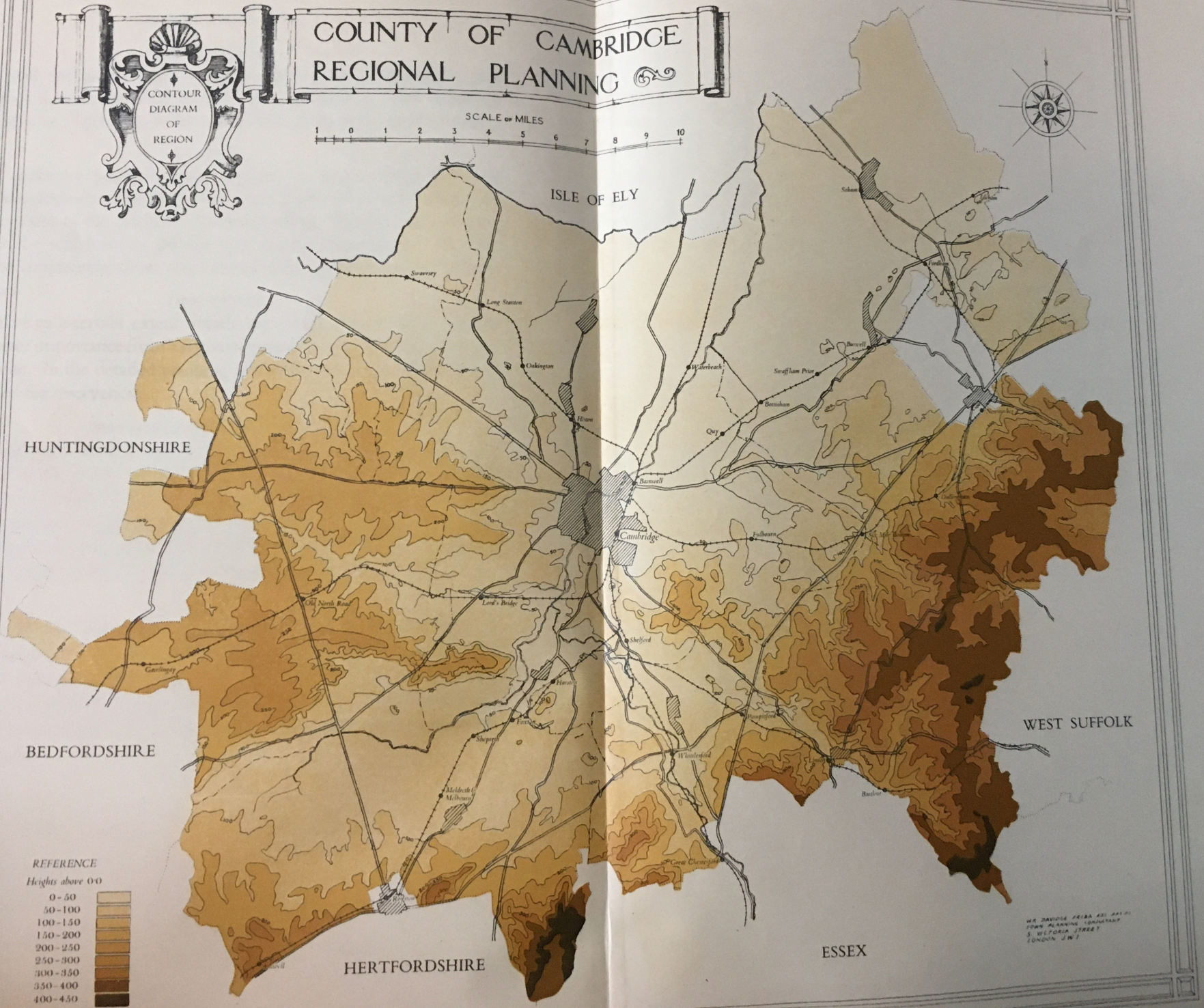
These have to a certain extent already been dealt with, but there will be many of lesser importance from a regional point of view which are amenities of local value. In the detailed planning of a statutory scheme these should be scheduled for reservation.

WATER-COURSES AND STREAMS

The preservation of the banks of streams and water-courses in each locality is a ready means of providing an adequate proportion of open space, the actual value of the land being low due to its unsuitability for building purposes. It is recommended that the banks should be reserved for a width of approximately 50 yards, and that public walks might be formed along them in some cases to link up the larger open spaces.

ALLOTMENTS

The necessity for allotments is largely due to the excessive density of houses in certain areas where there is insufficient garden space. The provision of new allotments will, therefore, be rendered less necessary if the density of building is controlled. The Ministry of Agriculture and Fisheries have, however, to be satisfied that suitable provision in statutory schemes is made.


COUNTY OF CAMBRIDGE
REGIONAL PLANNING
CONTOUR DIAGRAM OF REGION
SCALE OF MILES
1 0 1 2 3 4 5 6 7 8 9 10
ISLE OF ELY
HUNTINGDONSHIRE
BEDFORDSHIRE
HERTFORDSHIRE
ESSEX
WEST SUFFOLK
Swavesey
Long Stanton
Oakington
Histon
Waterbeach
Swaffham Prior
Burwell
Bottisham
Quy
Barnwell
Cambridge
Fulbourn
Soham
Fordham
Newmarket
Six Mile Bottom
Lord's Bridge
Old North Road
Gamlingay
Harston
Foxton
Shepreth
Shelford
Whittlesford
Pampisford
Linton
Bartlow
Great Chesterford
Meldreth & Melbourn
Royston
Ashwell
REFERENCE
Heights above O.D.
0-50
50-100
100-150
150-200
200-250
250-300
300-350
350-400
400-450
W R DAVIDGE FRIBA
TOWN PLANNING CONSULTANT
5 VICTORIA STREET
LONDON SW1

Part III

MATTERS RELATING TO EFFECTIVE TOWN PLANNING

A FEN FARM

Sylvia A. Abram

CHAPTER VI

MATTERS RELATING TO EFFECTIVE PLANNING CONTROL OF DEVELOPMENT—BUILDING TRADITIONS ROAD DESIGN

MATTERS RELATING TO EFFECTIVE PLANNING

A SUCCESSFUL town planning scheme cannot be ensured merely by making provisions as to character zoning and density, road improvements and open spaces. An equally important aspect to consider is the regulating and ordering of development to ensure the protection of existing amenities and the introduction of new amenities. The following matters relating to effective town and regional planning or development must therefore be dealt with:

(1) Control of building development.
(2) Building traditions.
(3) Road design.
(4) Advertisement regulation.
(5) Control of petroleum filling stations.
(6) Control of excavations.
(7) Regulation of refuse deposits and tips.
(8) Prevention of floods.
(9) Protection of ancient monuments.
(10) Protection of trees and woodland.

CONTROL OF BUILDING DEVELOPMENT

Recent new development in the region proves that if buildings are to take their proper place in relation to the landscape two matters of equal importance have to be considered: the placing of buildings on their sites, and the design and materials used in their construction. Powers of control in both instances are limited to those contained in the Town and Country Planning Act, for the purposes of which "building" includes structure or erection, enabling the Town Planning Authority to make provisions with regard to the following:

Powers

Siting of Buildings

(*a*) The proportion of a site which may be covered by a building.
(*b*) The distance it is set back from the road.
(*c*) Breaks in buildings, i.e. the maximum number of houses to be allowed in one continuous block, and the distances between buildings.

Size, Height, Design and External Appearance

(*d*) Size of buildings.
(*e*) The maximum height to which buildings may rise.
(*f*) The design and external appearance of buildings.

These provisions are particularly valuable and essential in any rural areas where no building by-laws obtain.

(*a*) *The proportion of a site which may be covered.* This is largely governed by the height allowable and should decline as the height is increased; for general purposes the table included in the Ministry of Health Model Clauses is reasonable. This should not necessarily be followed rigidly, but be carefully varied to suit particular local conditions, especially in areas where existing development influences the question to an appreciable extent, or a modification is reasonable on sites at street junctions, or in other cases where land is set aside for street improvement or other public purposes.

(*b*) *Building lines.* The setting back of buildings ensures garden ground contiguous to the street, and increases the efficiency of the street for traffic purposes, particularly at street junctions. From the point of view of amenities, however, the monotonous regularity which building lines are inclined to impose may prove detrimental, and it is desirable that there should be occasional breaks in the building line.

Efforts should be made to secure the grouping of houses to avoid continuous rows behind a limited building line. A lay-out incorporating back land in addition to the frontage land on existing roads lessens the rapidity with which ribbon development takes place, and provides for reasonable access to back land when required.

Provisions are contained in schemes giving power to permit buildings in advance of established building lines. These suggestions are, however, generally limited to consent in the case of industrial buildings or groups of

VARIOUS FORMS OF DEVELOPMENT PROVIDING AND DISREGARDING AMENITY

FIG. 1
SCHEME FOR MODERN DEVELOPMENT MAKING PROVISION FOR VILLAGE GREEN

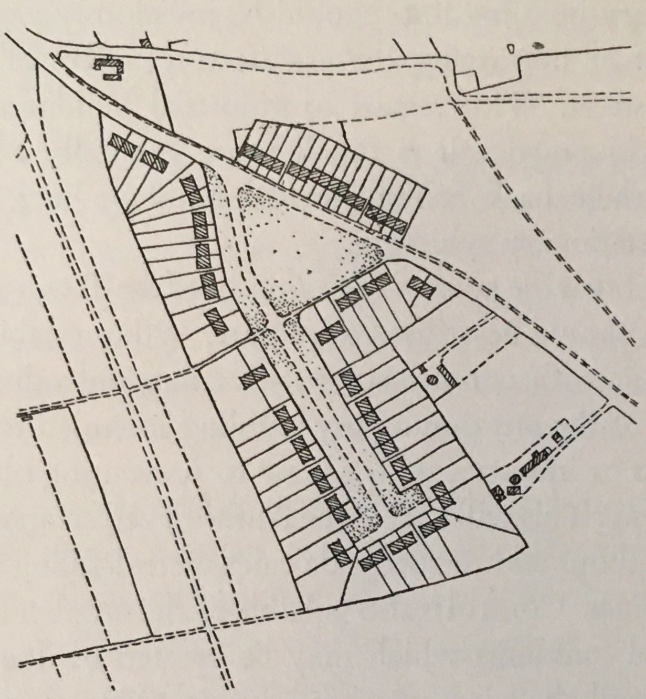


FIG. 3
TYPICAL RIBBON DEVELOPMENT WITH NO REGARD TO AMENITY

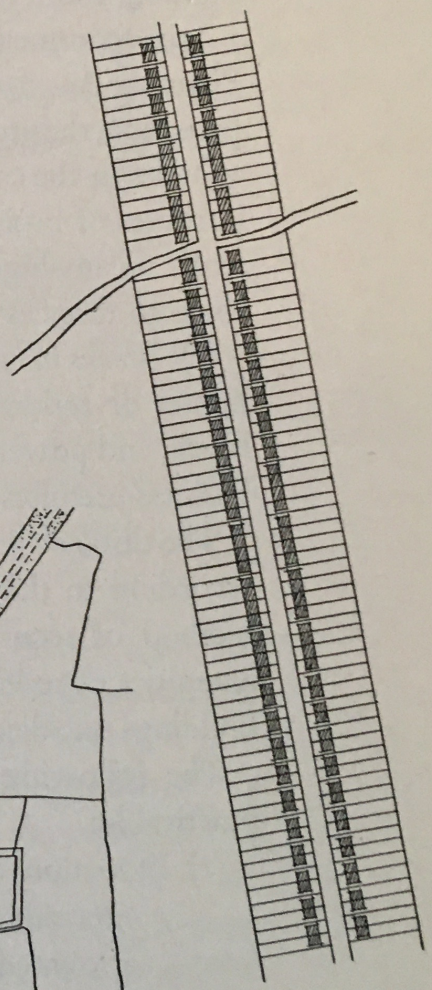
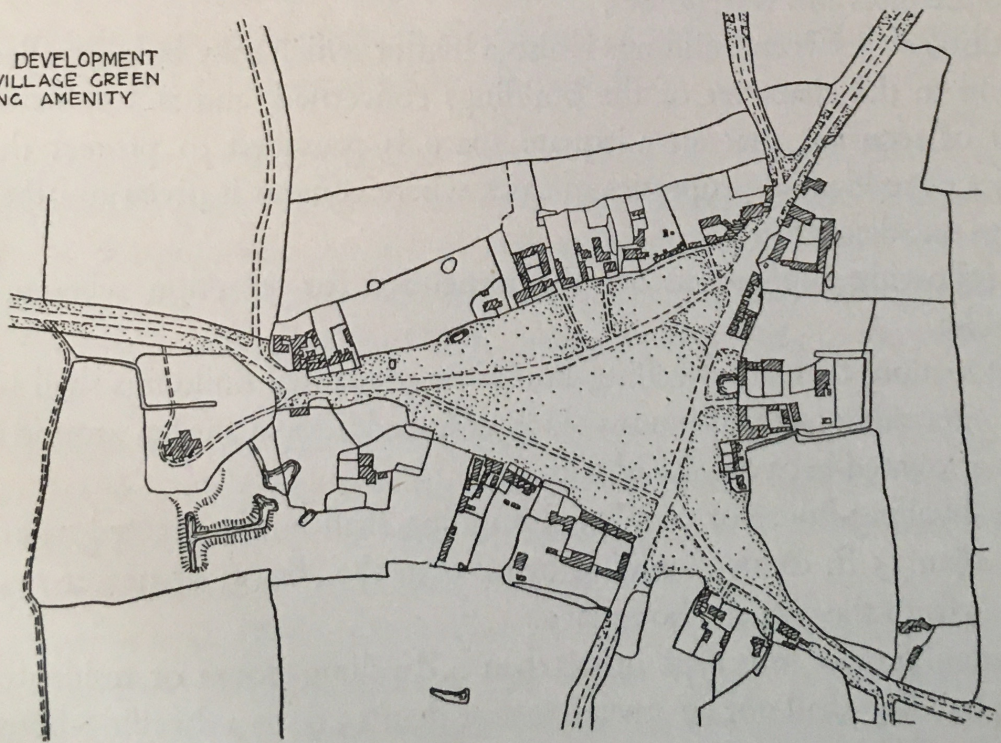
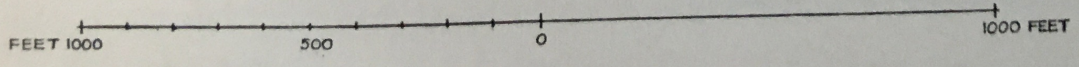


FIG. 2
TYPICAL DEVELOPMENT ROUND VILLAGE GREEN AFFORDING AMENITY





shops and business premises, and lodges or other buildings used in connection with a dwelling-house.

The power to vary building lines should be judiciously exercised, with the primary object of improving the architectural effect of a group of buildings or of a street. With regard to industrial buildings, shops and business premises, in practice it is much more generally advisable and convenient to set these back behind normal building lines, so securing standing room for stationary vehicles.

It is recommended that the powers of section 19 of the Town and Country Planning Act, 1932, should be utilised to require, without liability to compensation, the provision of accommodation for loading, unloading or fuelling vehicles in the case of the erection of any building intended to be used for purposes of business or industry, with a view to preventing obstruction of traffic on any highway. This will enable the Authority to arrange for service roads to terraces of shops and to road-side cafés, petrol-filling stations, etc.

(*c*) *Breaks in buildings.* Control is also possible of the number of dwelling-houses or residential buildings which may be erected in one continuous block, and power should be taken to extend this provision to include shops, business premises and warehouses.

The distance between buildings is also a matter which may be controlled according to the character of the buildings concerned, and is a valuable method of securing that an adequate space is provided to protect the amenities of residential properties in cases where consent is given to other buildings on adjacent sites.

The following suggestions are recommended for adoption wherever practicable:

(1) Not more than six dwelling-houses or residential buildings shall be erected in one continuous block unless additional garden ground is provided between the blocks.

(2) A dwelling-house or residential building shall not be erected nearer than 15 ft. to any building other than the above; or nearer than 4 ft. to the owner's boundary.

(3) A building of any type other than a dwelling-house or residential building shall not be erected nearer than 15 ft. to a dwelling-house or residential building.

In all the above-mentioned matters the disadvantage of the available legislative control is that it is likely to stereotype development by suggesting the minimum allowable, up to which general building development will almost automatically go. The legal "minimum" becomes in practice the "maximum".

A study of local conditions reveals that in the majority of the picturesque towns and villages the proportion of site which may be covered is exceeded, no building line is observed, and very frequently a whole series of cottages and small shops are built together in a continuous row of varying height and irregular design. Yet the effect is often one of complete charm, proving the need for elasticity and the exercise of discretion in giving approval, rather than the unrelaxed imposition of a rigid formula.

(*d*) *Size of buildings.* The object of the new power to control size appears to be largely designed to prevent the depreciation of property in a street by the sudden introduction of a new building, either of exceptional height so as to overshadow adjoining buildings, or too low to be in keeping, such as a bungalow might be in a street of substantial two or three storeyed houses. The effect of the power will probably be more clearly defined by the new model clauses at present being prepared for use in the making of schemes under the new Act.

(*e*) *Height of buildings.* The almost unbroken flatness of the northern part of the region makes the need for controlling the outward appearance of new development a matter of even more than usual importance, for any building sited on the fen-land has the sky for its main background and is not assisted in taking its place in the scene by variations in the formation of the ground.

In both the fen and upland districts the outline of a building is very significant, and if this is hard or ill-proportioned and the design of the building or colour of the materials used is in any way assertive, the result is most disastrous to the serenity of the countryside.

Power is available for controlling the height of buildings, and for general purposes it is recommended that in town and village centres this should be limited for residential buildings, shops and business premises to a maximum of 50 ft., and in open rural areas, where the density of building development

is intended to be low, to 30 ft., or three storeys for residential buildings and 40 ft. for shops and business premises.

The height of industrial or public buildings is most suitably left to the discretion of the local councils.

(*f*) *Design and External Appearance.* Section 12 of the Town and Country Planning Act, 1932, enables the responsible Authority "to regulate the size, height, design and external appearance of buildings". The scheme must in such case provide for some form of appeal, either to a Court of Summary Jurisdiction, or to a tribunal to be constituted under the scheme. The usual constitution of such a tribunal is one Architect nominated by the President of the R.I.B.A., one Surveyor nominated by the President of the Chartered Surveyors' Institution, and one other—usually a J.P. nominated by the Council.

The first model clause did not allow for control of any buildings exempt from the operation of the local building by-laws, but no building, structure or erection need be exempt from control under the revised powers. In many rural districts it is these exempted buildings which cause most detriment to the amenities, and it is recommended that these also should be covered by the regulative powers. Although they are generally classified as temporary, these structures are often capable of enduring many years, and in any case such habitations as converted railway carriages, omnibuses and wooden sheds should be brought under control. Section 27 of the Public Health Act, 1907, may also, with the approval of the Ministry, be used to control temporary buildings.

Panels of Architects

In connection with the control of elevations, it is an advantage that Panels of Architects have already been set up, and their specialised knowledge and experience are now available for the assistance of Local Authorities. If they are asked to do so, they advise the Local Authority which elevations should not be passed, but, more frequently, they, through the Surveyor, persuade the owners to modify the plans in such a way that the amenities of the district are preserved, and there is no question of the plans being rejected on the score of their unsuitable appearance. Usually the Architects attend in rotation, but in some counties two or three Architects are deputed to each Planning Authority.

C.P.R.E. and R.I.B.A. Scheme

Cambridgeshire and the Isle of Ely had the first Panel actually to start work after the scheme had been initiated by the C.P.R.E. and R.I.B.A., at first to assist with views about the reconditioning of cottages under the Housing Rural Workers Act and to give general advice and assistance whenever asked to do so. Unlike many Panels which have been set up more recently, this Panel consists of "Architects and others", these others being representatives of local authorities, builders, surveyors and land-owners, whose assistance has been very valuable, though technical matters are considered by the Architects alone. There are five Architects appointed by the Chapter, retiring each half-year in rotation and eligible for reappointment after six months. Reports are usually made by one member and confirmed by the whole Panel.

In many cases useful advice on housing lay-outs, design or repair of cottages, suitability of elevations, etc., has been given by the Panel.

Pamphlet of Advice

The Cambridgeshire Panel has recently drawn up a pamphlet of advice on building in the County, issued by the C.P.R.E., the Chapter of Architects and the Federation of Building Trades Employers. It is organising on behalf of the C.P.R.E. and of the local Architects a system of issuing cheaply well-designed plans of very small houses for owners who cannot afford to employ an Architect.

Applications for help by the Panel of Architects should be made to the Hon. Secretary, W. P. Baker, Esq., at C.P.R.E. Headquarters, Cambridgeshire House, 7 Hills Road, Cambridge.

BUILDING TRADITIONS

The local building materials used in the past and the local traditions are generally good and sound guides when considering the approval of the design and materials of buildings, and Cambridgeshire is no exception to this rule, in spite of the fact that the local bricks now generally manufactured are of a comparatively unattractive and obdurate character.

Clunch

The material most used in the early Middle Ages for buildings of any size was clunch, a stone similar to chalk in appearance, but harder and more reliable. The best quarries at Burwell yield very large blocks, admirably suitable for interior work and fine carving. There were several other quarries

from which a good ashlar stone was procured, as for instance Cherry Hinton (still used) and Haslingfield. Clunch of inferior quality used for rubble walling is procurable from many places, the villages having their clunch pits, in which all the villagers had rights. Clunch in exterior work must be carefully protected from weather by over-hanging eaves, drips, and by coats of limewash renewed at intervals. It continued to be used for foundations and the body of walls faced with brick to the end of the seventeenth century, and in work near the quarries till the close of the nineteenth century.

Provided due protection is given and the buildings are kept in good condition, clunch is an admirable building material, and weathers to a lovely pearly colour. It can also be satisfactorily used if pounded in a mould with cement.

Local Bricks The earliest bricks made in this district were either a pale gold colour or a light pink. The pale gold is in hand-made bricks, fully burnt. The pink colour, as used in St John's College, and many old Cambridge buildings, *Multi-roughs* is believed to be obtained by a careful mixture of clays. Multi-roughs or similar bricks are now being made in the neighbourhood, substantially the same colour and texture as those early bricks, producing a wall of a mellow plum-like colouring which is soft and attractive.

Stock Bricks The Cambridge stock brick, made by mixing the clay with breeze and burning in an open clamp, is not now made, but a rather similar appearance can be obtained by burning the ordinary Cambridge brick a little longer. This gives a very pleasant primrose colour for very little expenditure over that of ordinary cheap bricks. A sand-face can be pressed into the brick before burning with very good results. The old Cambridge hand-made white brick is one which weathers very well in the country and is still *White Bricks* obtainable. The white brick usually supplied is of a very even whiteness and rather a smooth face. This needs to be used carefully, as only very good proportion can give quality to a building in these bricks. Attempts to relieve the monotony of the brick by the insertion of red arches, quoins, etc., have usually the most deplorable results, and should be very much discouraged.

For present-day use the ordinary white local bricks could suitably be adopted, provided they are rendered rough-cast or lime-washed to soften their effect. The hardness of the surface of the local brick may not lend itself

Unsatisfactory urban type—overshadowing a rural neighbour

J. F. A.

Simple types of appropriate village architecture

to this, but it should be possible to arrange for a sufficient key to be given to the bricks in the process of manufacture. It is recommended that the assistance of the University should be sought with a view to organising research into the possibilities of improving local bricks.

Red Bricks

Red bricks should generally be avoided, especially in the country districts, particularly as those made in the neighbourhood are unfortunately strong in colour and do not mellow much. Those that are soft in colour are often also porous in texture.

The silver-grey colour of clunch suggests that very good use might be made of concrete blocks or poured concrete, and several cottages have been very successfully made with this material.

Plastering

Rendering

Half-timbering

In much of the County the characteristic buildings are timber-framed, plastered and whitened or colour-washed. Plastering is either plain, or scratched and pricked in many pleasant patterns. This is a valuable suggestion for modern work, though it should be noted that cement plastering in imitation of lime plastering is very mechanical. Excellent effects can be obtained in rendering, and variety given by coloured cements. There are very few instances in the whole County of the timber studs being left exposed. Almost always the whole wall was plastered to keep out the weather. The modern practice of nailing boards to an external wall in the hope of creating picturesqueness has no tradition behind it, and is miserably bad building. It might well be absolutely forbidden.

Colour-washing

White-washing or colour-washing, either on brick or plaster, is one of the commonest characteristics of fine old buildings. Both these practices should be encouraged.

Thatch

The earliest roofing of the County was usually straw thatch, and a great proportion of the cottages are still roofed in this way. With modern threshed straw this is becoming unsatisfactory and costly in upkeep, but thatching in Norfolk reed makes a lasting roof with excellent insulating qualities and a very lovely colour. There are good thatchers in the County.

Sedge from the National Trust property in Wicken Fen can also be used for thatching, and is more durable than straw.

Tiles

Hand-made plain tiles are commonly used, either red tiles brought into the area, or the honey-coloured hand-made tiles which were made mostly in the Ramsey area, but also in other parts, burnt to a variety of light colours

and weathering most beautifully. They are at present very hard to get, and an effort should be made to revive them.

The same remarks apply to pantiles. Introduced about the end of the seventeenth century, the red pantile made chiefly in Lincolnshire and Yorkshire quickly became the standard roofing material for the east coast areas—Cambridge being on the edge of East Anglia has about equal numbers of roofs with plain and pantiles. The Ramsey pantiles and corrugated tiles made all through the last century make a beautiful varied roof. Pantiles, if used by an experienced tiler, make good roofs and are light in weight; the discredit in which they are often held is usually due to bad laying.

Interlocking Tiles

Other interlocking tiles may be divided, so far as appearance goes, into those which are red with a smooth surface through being made in an oiled metal mould, and those that are slightly porous. It may be taken that the first class scarcely change colour at all and should be avoided; the second, especially near a smoky town like Cambridge, quickly darken to a rich dark colour. Also there are concrete tiles made in shades of dark red and dark brown, and a grey very much like stone, which tone admirably; but the smooth purplish concrete tile is always very unpleasant.

If the colour is permanent, use might be made of brown or smut pantiles.

Roman Tiles

In the northern part of the region a rich brown glazed Roman tile has been used on some of the old houses with good effect, and it is suggested that the use of various brown, grey or black glazed tiles should be encouraged in conjunction with white walls, particularly in the rural areas.

Slates

Slate roofs have been very common all through the fens. They should be used simply, with roughish grey slates rather than smooth purple ones. The ridges should always be of the same colour as the roof. In making any suggestions for modern building it must be realised that the majority of small builders use only a cheap roofing material. Some use only asbestos, especially on a roof of wide span where light weight is essential. It may be said that grey asbestos slates or sheeting for agricultural buildings always have something of a grey sky in them and in time they either bleach or go darker and greenish. Some council houses in the County, roofed with russet or even grey asbestos slates and kept absolutely simple, harmonise very well with the older buildings and the bleakness of the fens, but it

At Melbourn

At Long Stanton

J. F. A.

should be an unbroken rule that these are laid in horizontal courses and the light pink colour should be avoided.

Traditional Designs

Regard should also be given to the elevations of old buildings in each district as a basis for consideration of new plans submitted for approval, and a photographic record in the office of each local authority would be of considerable value.

Reconditioning

It is of great consequence to the future of the region that the old cottages and farm buildings still surviving should be protected and maintained. In many villages the decay of the old cottages is noticeable and many are far gone in a state of disrepair, but demolition should not be considered until the possibilities of restoration and adaptation have been explored. The problem of preservation has been simplified by the provisions of the Housing Act, 1930. The fullest possible use should be made of the provisions of Part IV, dealing with the provision of houses in rural districts, in conjunction with the provisions of the Housing (Rural Workers) Act, 1926, which enables local authorities to give financial assistance towards the cost of structural alteration, repair and improvement of old cottages.

Alterations or additions to old buildings should also be controlled with a view to preventing the defacing of the façades of any old buildings which have architectural merit. Many alterations, resulting from the outward growth of established towns, are entirely incongruous, and these should be controlled by the zoning restrictions of a town planning scheme, preventing change of user if it appears essential in the interests of amenity, and by the clause dealing with the control of elevations, necessitating the submission of plans of any alterations and additions for approval by the local authority.

ROAD DESIGN

Margins and Planting

There is no doubt that roads have another function than that of acting as a channel for traffic. They are the principal means of providing the ordinary traveller with a view of the countryside and must therefore be dealt with in a manner which does not detract from the natural beauty of the landscape. Much should be made of the possibilities of providing grass

verges, hedgerows, wayside trees and flowering shrubs to enhance the scenic value of the traffic thoroughfares, and of protecting the existing trees, hedges and roadside wastes which add so much to the amenities of the roads.

Grass Margins

It is seldom necessary to metal and pave the whole of the width set aside for ultimate widening, but the reservation of a generous width ensures that sufficient space is available if at any time it proves necessary to widen the carriage-ways. In the meantime the surplus land, if grassed and planted, is a great addition to the amenities, both from the point of view of road users and residential development. Urbanisation of the countryside by unnecessary kerbing or paving is to be avoided in favour of a wide grass margin with sunken kerbs, which should as a general rule afford adequate protection for foot passengers.

Tree Planting

Under ordinary highway legislation the County Council has power to plant trees in roads in both urban and rural districts, and to delegate these powers in both cases if it appears desirable. Under town planning legislation a local authority "may lay out as a garden any part of a street repairable by the inhabitants at large or may plant any part of such street with grass, trees or shrubs and erect guards therefor and may maintain, alter or renew the part of the street so laid out or planted". Adequate powers therefore exist to ensure satisfactory results.

Irregularity in the width of the reservations is an essential part of a satisfactory scheme, and as far as possible existing belts and groups of trees, spinneys, brooks and any special features within easy sight of the highway should be included to provide the variety and interest that is not so possible when the more usual schemes of regular tree planting are adopted.

Widths and Building Lines

The general standards of road widths adopted should be varied according to the probable future use of the road. The standard of the Ministry of Transport provides for a width of 60 ft. with 30 ft. building lines on class "A" roads and 50 ft. with 25 ft. building lines on class "B" roads. These widths need not, however, be confined to the main roads. The Public Health Act, 1925, provides that, if in the opinion of the local authority a proposed new street will form a traffic communication, the authority

Width exceeding By-law requirements

may, as a condition of their approval, require "that the new street shall be formed of such width as they may determine up to an additional 20 ft. in excess of the maximum width prescribed in any by-law or local Act in force in the area" without being liable to pay compensation.

Greater widths can, therefore, with the support of the County, be included in town planning schemes without involving financial claims, and the best use should be made of these circumstances.

Variation on By-law widths

In the case of such roads as will clearly not be required for through traffic, as, for example, on a residential estate, the Council may vary and relax the by-laws as to streets to allow for the construction of streets of various widths in relation to length. This provision should be made full use of, as the condition of approval to a modification of the by-law width, that "any portion of the surface of the street not constructed as carriage-way or footway shall be planted with grass, trees or shrubs", tends to give a very pleasant character to residential streets.

Service Roads

The use of short cul-de-sac roads should be encouraged in estate development, and wherever possible special residential service roads should be provided on main road frontages.

Schedule of Street Widths

The Cambridgeshire County Council, in pursuance of their powers under the Local Government Act, 1929, have already drawn up a standard specification and schedule of street widths for estate roads, as under:

Type	Length	Minimum width of street	Minimum width of carriage-way	Minimum no. of footways	Minimum width of each footway
Streets likely to be required for through traffic					
A	Unlimited	40 ft.	26 ft.	2	7 ft.
Streets not likely to be required for through traffic					
B	Unlimited	36 ft.	18 ft.	2	5 ft.
C	750 ft.	30 ,,	16 ,,	2	4 ,,
D, cul-de-sac ..	600 ,,	24 ,,	16 ,,	2	4 ,,
E, cul-de-sac ..	200 ,,	16 ,,	8 ,,	2	4 ,,
F, round quadrangles	500 ,,	14 ,,	10 ,,	1	4 ,,

If the street exceeds 500 ft. in length a turning space (or turning spaces) of not less than 30 ft. diameter shall be provided not exceeding 500 ft. apart or from either end of the street.

Lay-out in each case to be approved by the town planning authority.

It is recommended that the above schedule should be generally adopted for inclusion in town planning schemes, together with a specification for works and materials. The power to make an order, with the approval of the Minister, to vary the specification by arrangement with the County Council in suitable cases, where the amenities would be better preserved by a lighter form of construction, should also be included in any schemes.

The establishing of regular building lines throughout a street does not necessarily create a satisfactory effect from the point of view of its appearance, and consideration should be given to the prescription of building lines, both to provide for the safety of traffic and to assist the architectural effect.

Road Junctions

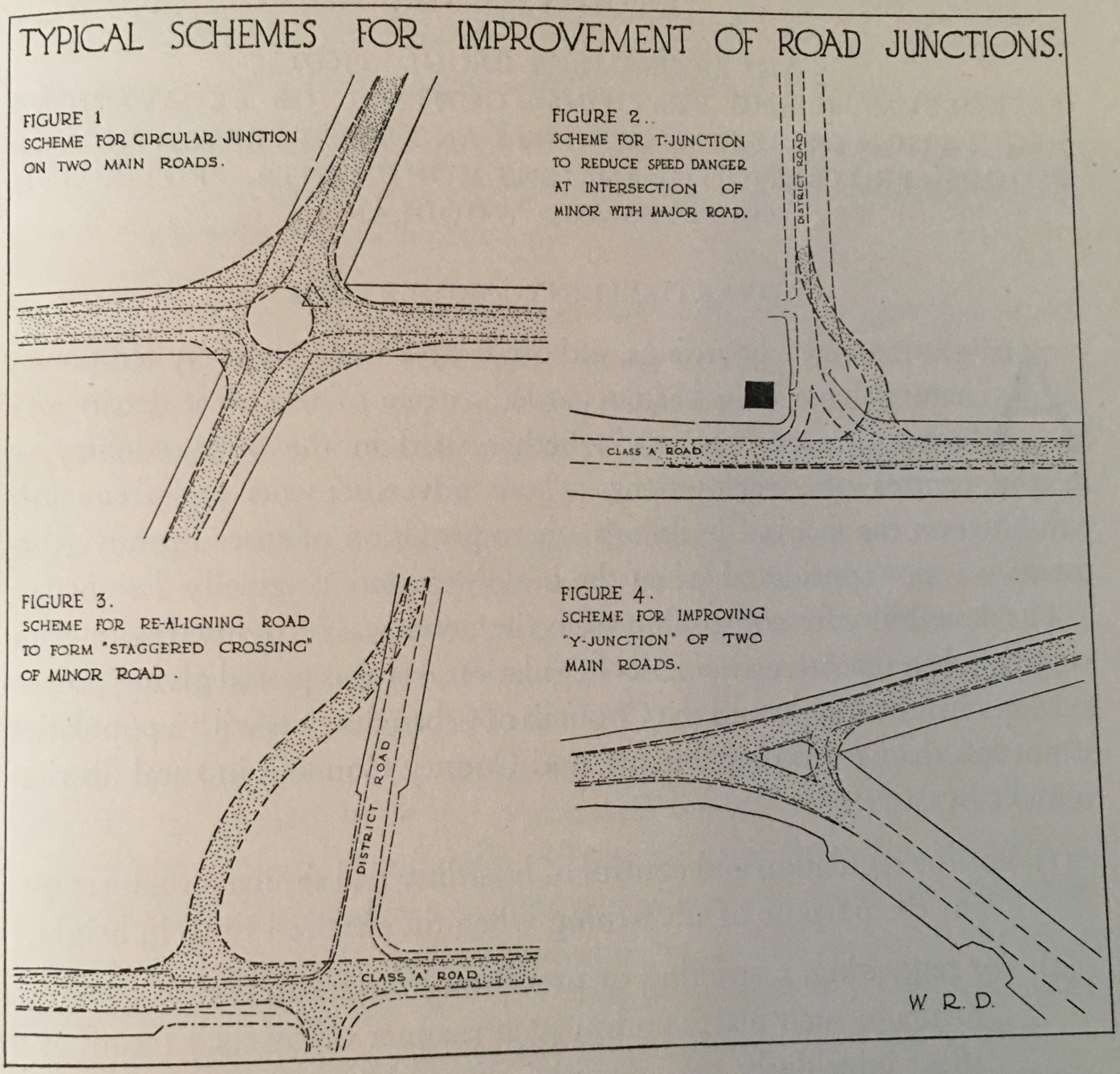
Principles governing design

The character of present-day traffic demands that road crossings and junctions should be planned to avoid dangerous intersections. A report on the lay-out of cross-roads, junctions and corners has been circulated by the Ministry of Transport, and the principles and recommendations contained in it should be given effect to in town planning schemes. Special building lines at road junctions would be necessitated, and, to establish a suitable line of vision, measurements of 125 ft. should be taken from the point of intersection of the centre lines of the roads, and any buildings should be set back behind lines joining the extremities of the 125 ft. distances. The following general principles should also be observed:

(1) Frequent entrances into main roads should be avoided and new road entries should not generally be permitted closer than a quarter of a mile apart. Under the Town and Country Planning Act, provisions can be made in schemes to the effect that no compensation shall be payable by the coming into operation of a provision which limits the number, or prescribes the sites of new roads entering a classified road, or a road, or the site of a proposed road, declared to be intended to be a classified road. Section 19 (1) (*i*).

(2) Multiple junctions should be avoided.

(3) Minor roads crossing arterial roads should be staggered. It is generally accepted that the stagger should allow traffic to turn left before crossing.



(4) At main crossings circular traffic should be devised.

(5) Shopping and business centres should not be placed at important road junctions, unless the corners are well splayed to secure clear vision and supplementary service roads are provided to prevent obstruction to traffic.

CHAPTER VII

ADVERTISEMENT REGULATION
PETROLEUM FILLING STATIONS—CONTROL OF EXCAVATIONS
REGULATION OF REFUSE DEPOSITS AND TIPS—PREVENTION OF FLOODS—PROTECTION OF ANCIENT MONUMENTS—PROTECTION OF TREES AND WOODLAND

ADVERTISEMENT REGULATION

ADVERTISEMENT hoardings, although of a comparatively temporary nature, have long been regarded as one of the most detrimental types of development, whether sited in the open country or in the centres of development, where advertisements are frequently exhibited on the faces of buildings where provision of space for advertisements was not considered when the buildings were originally designed.

Advertisements Regulation Acts

The desirability for controlling advertisements was recognised as long ago as 1907, when the Advertisements Regulation Act was passed giving powers to Municipal Boroughs and the Councils of urban districts with a population of not less than 10,000 inhabitants, and County Councils in rural districts, to make by-laws:

(1) For the regulation and control of hoarding and similar structures used for the purpose of advertising when they exceed 12 ft. in height.

(2) For regulating, restricting or preventing the exhibition of advertisements in such places and in such manner or by such means as to affect injuriously the amenities of a public park or pleasure promenade, or to disfigure the natural beauty of a landscape.

Any hoardings or similar structures in use for advertising purposes at the time of the making of the by-laws are excluded from the operation of the by-laws for a period of not less than five years.

The weight of public opinion against the defacing of the countryside and buildings grew, and in 1925 a second Advertisements Regulation Act was passed, extending the powers of a local authority to make by-laws for

regulating, restricting or preventing within their districts the exhibition of advertisements so as to disfigure or injuriously affect:

(*a*) The view of rural scenery from a highway or railway, or from a public place or water; or

(*b*) The amenities of any village within the district of a rural council; or

(*c*) The amenities of any historic or public building or monument, or of any place frequented by the public solely or chiefly on account of its beauty or historic interest.

Exempt advertisements

These provisions, which are considerably wider than originally, do not apply to the exhibition of advertisements on or upon any railway station, yard, platform or railway approach; or, except within the district of a rural district council, on any dock, quay, pier, landing stage, wharf, lock or toll station. In such cases it is obvious that certain advertisements are appropriate, being necessary to the functions of the particular undertaking concerned, and no exception could reasonably be taken to such advertisements.

The amended Act also contains a useful provision that the County Council may delegate their powers to the smaller urban districts and arrange for the enforcing of any by-laws by rural district councils.

To these wider powers for regulating advertisements additional power is added by the provisions of the Town and Country Planning Act, which enable a town planning authority to exercise some powers of controlling the display of advertisements in their area, where the display of a proposed advertisement would be in such a position or in such manner as to injure the amenity of any part of the area. If this is proved to be the case it may be regarded as a direct contravention of a scheme.

Town planning powers

Under a town planning scheme a person may apply to the authority for their consent to the display of an advertisement. The authority may authorise generally the display of particular classes of advertisement, such as trade names and notices, with or without specifying the position or manner in which they may be displayed. These provisions are particularly useful, as they deal with all varieties of advertisements or hoardings which would seriously injure the amenity of land specified in a scheme as land protected under the Act in respect of advertisements, whereas the by-laws

made under the Advertisements Regulation Act are limited to advertisements in particular places affecting rural amenities.

It is recommended that the fullest use should be made of these available legislative powers in the interests of preserving the amenities, and it should be borne in mind that it is necessary to stipulate the land over which control is intended.

PETROLEUM FILLING STATIONS

If, as has been recommended, the clause for the control of elevations is extended to cover all erections and buildings normally exempt from the operation of the building by-laws, much can be done under a town planning scheme to govern the appearance of petrol-filling stations. Town planning powers have also been considerably reinforced by the provisions of the Petroleum (Consolidation) Act, 1928, conferring on County and Borough Councils the following powers:

(1) A power to regulate the appearance of petrol-filling stations in specified areas, and in particular to specify requirements "as to the position, design, size, colour, and screening of such stations or any parts thereof".

(2) A power to prohibit the establishment of petrol-filling stations and require their removal (on payment of compensation) from other specified areas.

Object of powers of control

The object of these powers is "for the purpose of preserving for the enjoyment of the public the amenities of any rural scenery or any place of beauty or historic interest or of any public park or pleasure promenade or of any street or place which is of interest by reason of its picturesque character". These powers do not enable the authorities to deal in any way with the distribution of or restriction against petrol-filling stations in any areas other than those in which they are to be definitely prohibited.

It is therefore recommended that each authority preparing a town planning scheme should control petrol-filling stations under town planning powers, after giving due consideration of any plans submitted, in relation to the provisions of the model by-laws issued by the Home Office or adopted by the County Council.

At the same time the proposed site of any new station should be considered

J. F. A.

Typical example of pioneer station

C.P.R.E.

What to aim at by control

with a view to securing that nothing is erected that might be considered to be detrimental to neighbouring properties, or cause danger or inconvenience to traffic. The zoning clauses in a scheme provide valuable safeguards, inasmuch as they can, if necessary, restrict the erection of petrol stations to the special areas allocated for the purposes of shopping and business premises.

Effect of zoning clauses

When application is made for consent to the development of a station or the erection of pumps in a zone primarily intended for residential buildings, where disapproval is subject to appeal to the Ministry of Health, any application should be considered entirely on its merits as a public service. The following general principles are a guide as to the conditions of approval that might reasonably be stipulated:

(1) That a distance of not less than 1½ miles should lie between one station and another, except in town or village centres.

(2) That all structures in connection with the station, including the pumps and oil containers, should be kept behind the normal building line.

(3) That parking ground should be provided for vehicles drawing up for supplies, within the curtilage of the premises. (See section 19 (1) (*l*), Town and Country Planning Act, 1932.)

(4) That no obstruction to visibility at street corners or road junctions can be allowed, even if setting back behind a deeper building line is involved to secure the necessary degree of visibility.

CONTROL OF EXCAVATIONS

Conditions as to extent, depth and situation

In such a region as this, where excavations are likely to be made in connection with the cement industry, brick-fields, gravel-getting, and similar activities, it is important that a clause should be included in any town planning schemes enabling the town planning authority to make reasonable conditions as to the extent, depth and situation of such excavation as may be necessary. It is particularly important that power should be taken to control excavations in the vicinity of highways, more especially as the provisions of section 70 of the Highways Act, 1835, stipulating that a distance of not less than 25 yds. shall be left between any part of any carriage-way or cart-way (unless behind some wall or fence), are seldom put into operation.

Screening would not now appear to be essential from the traffic point of view; in fact, it might create added danger, but the setting back is very desirable and should be required in conjunction with any other reasonable conditions that may appear necessary. Any clause dealing with this matter should be sufficiently elastic to allow for special circumstances in each case.

REGULATION OF REFUSE DEPOSITS AND TIPS

Powers of control

Such provisions as are necessary for prohibiting, regulating or controlling the deposit or disposal of waste materials and refuse, can also be included in schemes. Refuse deposits and tips are likely to prove detrimental to residential areas unless consideration is given to the location, extent and treatment of them. In order to prevent deposits of spoil, earth or refuse from being unsatisfactory from the point of view of amenity and public health, it is very desirable that control should be established. This can be done either by a special by-law governing the siting, height and extent of such deposits, or by a clause in a town planning scheme included in the section dealing with protection of amenity.

Consideration should be given to the matter to ensure that as far as possible old excavations are chosen for refuse tips, and spoil earth is used to raise the level of low-lying land. A method for dealing with refuse disposal, which has been adopted in other parts of the country with success, is that known as the Bradford system.

Bradford system

Refuse of all descriptions is collected and removed to a number of tips, where it is deposited in layers, 6 ft. deep by 24 ft. wide, the slope of the sides not exceeding an angle of 40°. In order to prevent nuisance from the smoke of combustion, or the habitation of the tips by rats due to crevices being left, which are the chief causes of detriment to neighbouring properties, any vessels and tins are filled with ash or earth and, together with the larger solids, thrown at the bottom of the tip, which is covered to a depth of a few inches with earth or other suitable material after each layer of refuse.

PREVENTION OF FLOODS

Low-lying land

The problem of flood control and prevention affects town planning most closely in connection with the desirability of preventing building development on low-lying land which is subject to flooding. This, though very

Trumpington Gravel Pit

Chalk Pit, Cherry Hinton

L. D. Pratt

general, is most unsatisfactory from the point of view of public health, and in town planning schemes the aim should be to restrict the use of land liable to flooding to uses other than for building development. Previously it was only possible to do this by zoning such land in a scheme as an open reservation, either as private open space or for recreational or agricultural purposes. If this could not be done by agreement with the owner, the local authority, by making such provisions, was liable to pay compensation to the extent of the difference between the agricultural and potential building value.

The new Town and Country Planning Act introduces legislation enabling a town planning authority to make provisions without liability to pay compensation:

(*a*) Prohibiting or restricting building operations either temporarily or permanently on the ground that, by reason of the situation or nature of the land, the erection of buildings thereon would involve danger or injury to health, or premature or excessive expenditure of public money in the provision of roads, sewers, water supply or other public services; or

(*b*) Prohibiting the use of land for a purpose likely to involve danger or injury to health, or likely to be seriously detrimental to the neighbourhood.

Under this law there will be no difficulty in scheduling areas of low-lying land as open reservations.

Catchment Board

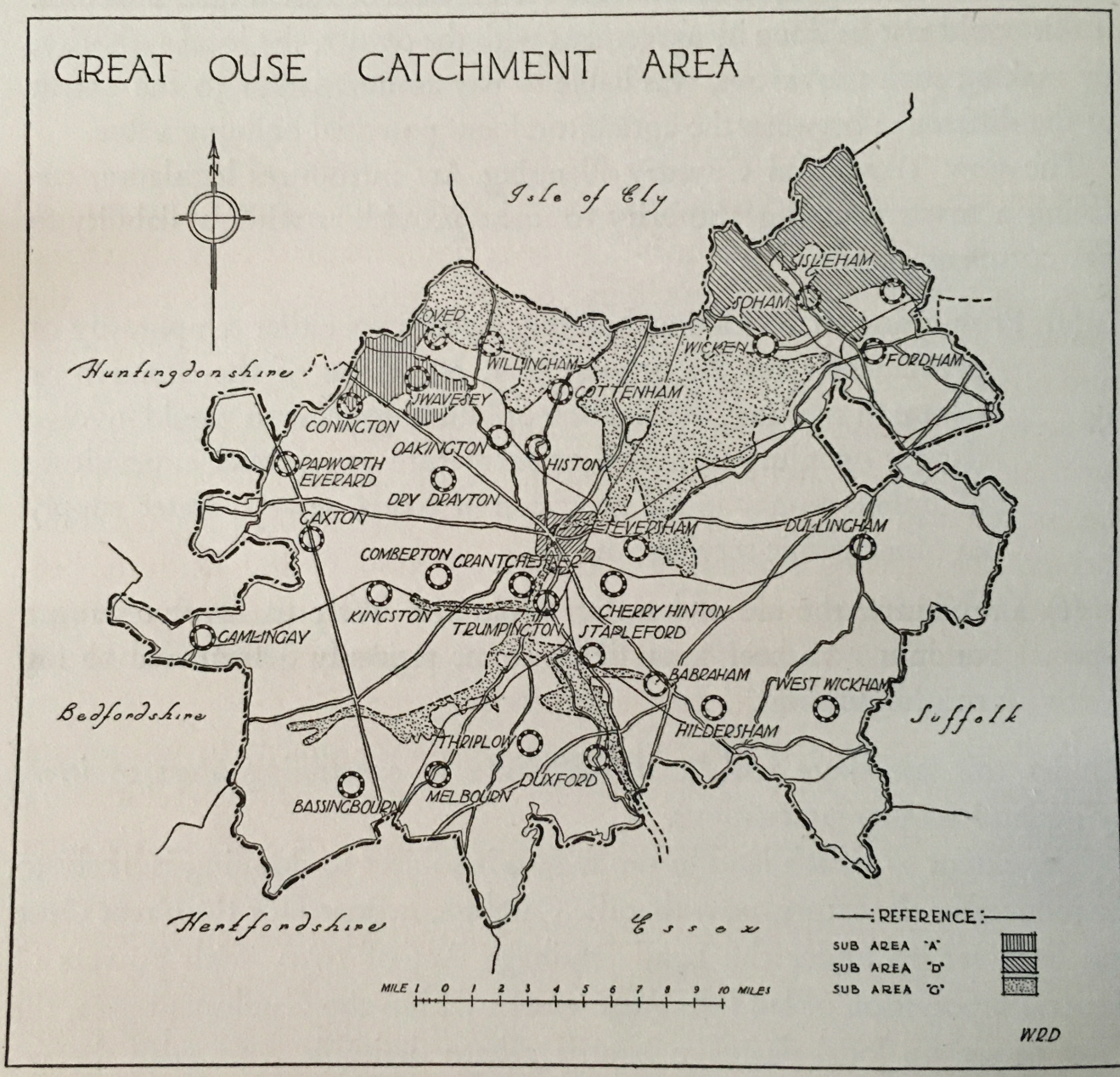
The extent to which land in the region is subject to flooding is likely to be reduced in the future, now that the Catchment Board for the Great Ouse has been set up under the Land Drainage Act of 1930, with powers of general supervision of land drainage works within the Catchment area, the duty to set up local drainage boards where desirable, and with the responsibility for some 500 miles of main river. Schemes for land drainage, and the carrying-off of soil water, will have to be submitted to and approved by the Board.

River pollution

This should lead to a much greater unity of action than heretofore, when there were many small boards for dealing with emergencies. Now that a general supervision over the drainage of the Great Ouse Catchment area, which covers a large part of the region, will be exercised, river pollution

will be controlled and a scheme prepared for the re-organisation of, and, where necessary, constitution of new Internal Drainage Boards.

The old difficulty of raising an adequate revenue, owing to restricted powers of rating for drainage rates, has been overcome by the provision of



the Act giving Catchment Boards power to precept on County and County Borough Councils within the catchment area for a contribution in connection with the main river. Internal Drainage Boards will also be precepted on for such a sum as the main Board consider to be fair.

Although it is understood no engineering works are contemplated as yet, there is every indication that the problem of improving drainage will be

dealt with in a comprehensive way, and the areas of land which are at present subject to flooding may be reduced in extent. It must, however, be borne in mind that it may prove desirable that certain areas should remain open to flooding to conserve the natural water supplies, and, in view of this, town planning schemes should be used to protect such areas against possible absorption into building areas.

Conservation of natural water supplies

PROTECTION OF ANCIENT MONUMENTS

Considerable attention has already been given to the essential question of protecting the ancient monuments in the region, and practically all of these have been scheduled for protection by the Office of Works under the Ancient Monuments Act. Town planning powers enable existing buildings, and other objects of architectural, historic, or artistic interest, to be preserved. Where the Minister of Health is satisfied that land comprises buildings or other objects of architectural, historic, or artistic interest, such land may be included in a scheme in order to preserve the existing character and protect the existing features of a locality. Section 17 deals with the preservation of certain buildings, and provides for protecting and preserving special buildings, whether inhabited or not, preventing their demolition without the consent of the proper authority.

Powers of control

It should therefore be possible to control development to protect the character of Cambridge, which is largely built up of the fine architectural buildings connected with the University and the rows of old houses in some of the central streets.

Cambridge buildings

Ancient monuments in the country areas should be protected under town planning powers by being included in a scheme with suitable areas of surrounding land as open spaces of one kind or another, and by restrictions on the character and design of any future neighbouring development. Buildings which have a special architectural, historic or artistic interest can be protected by the prescription of space about buildings, limiting the number of buildings to be erected in the vicinity, prescribing the height or character of buildings, and controlling the design and elevations of any new buildings or proposed additions or alterations.

PROTECTION OF TREES AND WOODLAND

Felling of trees

As trees so largely contribute to the amenities of a district, either in the form of woodlands or as plantations in parks, standards in hedges, and isolated either singly or in clumps, it is very important that power should be taken under a town planning scheme to prevent the ruthless destruction of them which is so frequently due to want of thought rather than necessity. In view of the fact that much timber has a market value and is often raised with the object of selling when the trees are matured, any general prohibition of the cutting down of trees is neither reasonable nor practicable.

Powers of control

It is, however, possible to schedule for preservation under section 46 any particular tree or group of trees, the preservation of which is considered by the authority to be desirable from the point of view of amenity. For this purpose a register must be made, and the destruction of any tree so registered, except with the authority of the Council or in case of emergency, is made an offence.

The appropriate clause generally included in a scheme is as follows:

(1) If at any time the Council, having regard to the amenity of any part of the area, are of opinion that any growing tree of a height of more than — feet or having a trunk of a girth of — above the ground, or any group of such trees, ought to be preserved, the Council may register the tree or group of trees, and shall thereupon notify the owner and occupier of the land upon which the tree or group of trees is growing that the tree or group of trees has been registered, and the register of trees so made shall be open to inspection by persons interested at all reasonable times.

(2) No person shall cut down or wilfully destroy any tree registered by the Council under this clause except with the consent of the Council or upon an order of a court of summary jurisdiction... if the owner or occupier appeals to the court against a refusal of the Council to consent to the felling of a registered tree.

Registered trees

The height limit and the diameter of the trunk must necessarily vary according to the species of tree, for it is clearly impracticable to make the same restrictions cover orchard trees and birches as would be suitable in the case of elms and ashes. In the model clauses a height limit of 30 ft., or

J. F. A.

Shelter Belt on Newmarket Road

The Times

Round Wicken Church

alternatively a girth of 2 ft. 6 in. measured at a height of 5 ft., are suggested for consideration, but these must not be considered as binding. The dimensions should be varied to suit circumstances, and should be thought out in detail.

Interim control

Any clause on the lines of that above does not come into effect till the final stage of a scheme, and it is recommended that power should be taken to govern the matter from the outset, by making stipulations as to trees to be preserved in giving consent to development under the General Interim Development Order, and that the Council's intention so to do should be stated, and made to cover plantations and ornamental shrubs which are as important assets as standard trees.

Part IV

THE PROMOTION, CO-ORDINATION AND LINKING-UP OF TOWN PLANNING SCHEMES

BOTTISHAM LODE

Sylvia A. Abram

CHAPTER VIII

EXISTING TOWN PLANNING SCHEMES
SUGGESTED AREAS FOR STATUTORY SCHEMES
CONCLUSION

EXISTING TOWN PLANNING SCHEMES

Value of planning

It has now become generally accepted that town planning powers are invaluable for controlling development both in urban and rural districts. In urban districts the possession of town planning powers enables the local authority to have reasonable control over the growth of the urban areas, and in the rural districts the local authority can control the casual development which is continually taking place.

Present position

At present the only statutory town planning schemes in the region are the two promoted by the Borough of Cambridge:

(1) That covering the eastern portion of the Borough; and

(2) The Cambridge and District Scheme, comprising the greater part of the Borough and the surrounding parts of Chesterton which are likely to be influenced by the growth of urban development.

(1) *The Cambridge (East) Town Planning Scheme*, dealing with an area on the eastern side of the Borough, has been authorised since 1922. The scheme makes provision for the eastern section of the proposed Ring Road from near Red Cross on the Hills Road to Elfleda Farm on the Newmarket Road, and for the character zoning of the adjoining land. Considerable areas are allocated for the purpose of industry, and zones for residential purposes are provided at densities of six, ten and twelve houses to the acre. There is therefore adequate provision for the housing of workers on the land adjoining the industrial areas. Fortunately, Stourbridge Common and Coldham's Common provide extensive public open spaces, and it has not appeared necessary to make much further provision.

(2) *The Cambridge and District Town Planning Scheme.* This scheme is still in its early stages and, although road proposals, character zones and

open spaces have been considered in general terms, the final decisions have yet to be reached. In broad terms, the proposals under consideration include considerable areas for residential development, at densities varying between four and twelve houses to the acre. These areas impinge upon the Borough boundaries and the areas themselves generally embrace the localities which are already partly developed or are likely to be developed in the future.

The isolated villages included in the scheme have had allocated to them considerable areas for building development, and these areas are zoned at twelve to the acre. Appropriate areas have been suggested for the development of industry, particularly on the east and north.

Several large areas have been reserved as private open spaces, by agreement with the owners, and in addition to these there are a number of intervening tracts of land of considerable extent which will be dealt with as "undetermined areas". These generally extend to the outer limits of the scheme and embrace those localities which show no sign of being developed.

The present provisional proposals will be amplified as the work of preparing the scheme progresses, and the question of open space reservations and the scheduling of shopping centres and allotment grounds is being gone into.

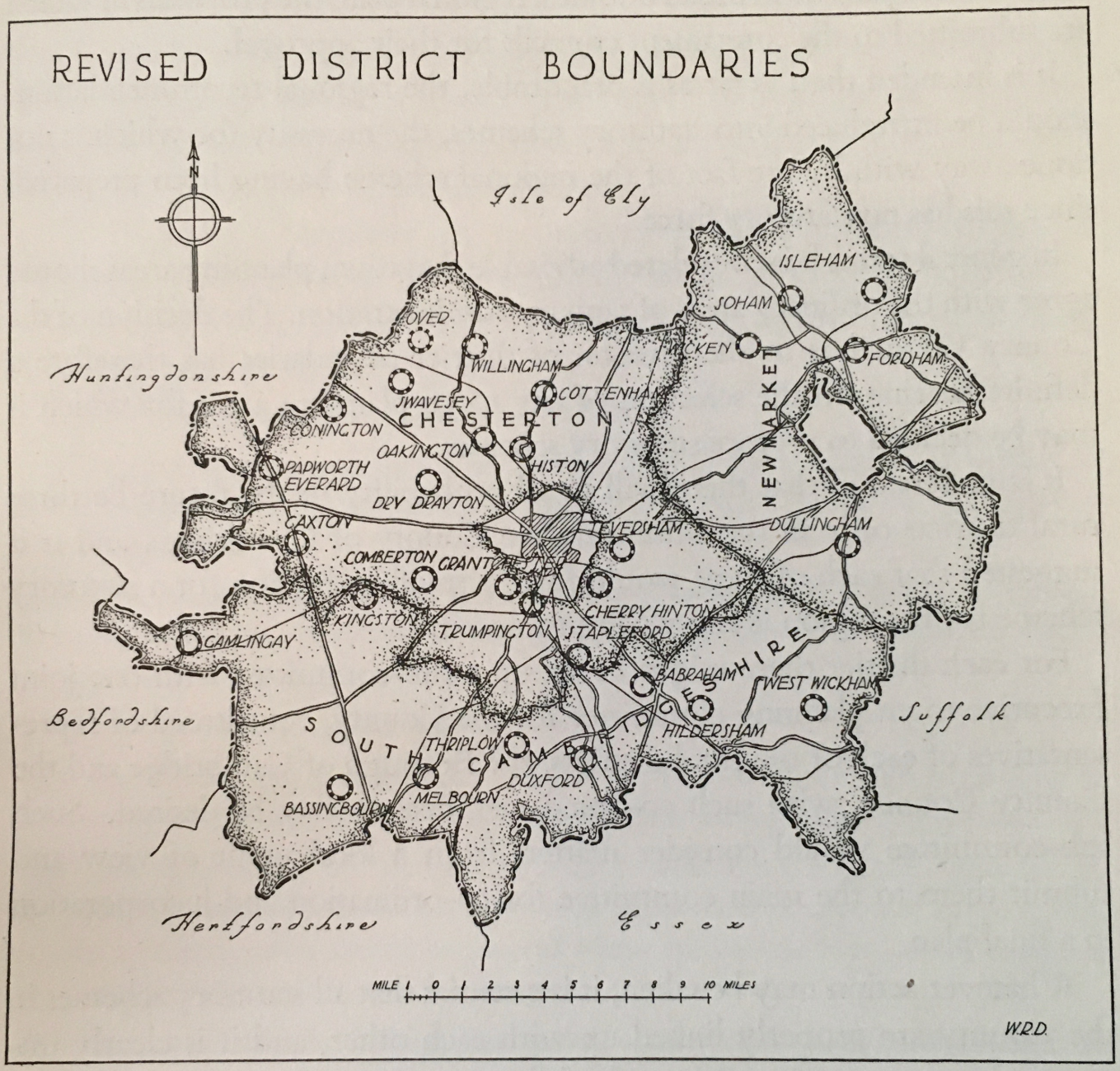
In general principles the statutory scheme should follow the regional plan, securing the preservation of the entity of each of the existing villages and open belt reservations in between the built-up areas.

It is always possible for any local authority to include in the area of its scheme land outside its own district, subject to the approval of the Minister of Health. In such cases it is obviously very desirable that consultations should take place between the authorities concerned, and at the same time with the County Council, particularly in view of the extended powers given to County Councils under the Local Government Act, 1929. Under this Act machinery was first provided to enable County Councils to take a more active part in the preparation of town planning schemes, by means of the setting up of joint executive committees on which the County Council is represented.

The Town and Country Planning Act allows for the association of the County Council with town planning schemes either by combining with

the local authorities to form joint committees or after being delegated the powers of an authority for the purposes of the Act.

It is advisable that the County Council should be closely identified with the preparation of schemes, particularly in a region which is mainly rural



in character, in order that proper co-ordination may be secured, more especially with regard to road and open space proposals, for the realisation of which the rural authority frequently needs financial support. In any case the promotion of schemes is generally facilitated in extensive rural areas by two or more local authorities joining to form a joint executive committee to which the local authorities concerned delegate their town planning powers.

SUGGESTED AREAS FOR STATUTORY SCHEMES

The present Joint Town Planning Committee is advisory only, and cannot do more than advise on the promotion and co-ordination of town planning schemes, and prepare in broad outline a regional plan, the proposals in which are submitted to the constituent councils for their approval.

Necessity for statutory schemes

It is intended that, as far as is practicable, the regional recommendations should be introduced into statutory schemes, the necessity for which is not done away with by the fact of the regional scheme having been prepared, since this has no statutory force.

In general terms it is considered advisable that town planning areas should agree with the ordinary areas of sanitary administration. The decision of the County Council as to the revision of district boundaries has therefore a definite bearing on the selection of any town planning areas for which it may be decided to prepare statutory schemes.

It is understood that there will in all probability in the future be three rural districts only in the administrative County of Cambridge, and it is suggested that each of these would form a suitable division for a statutory scheme for the region if and when promoted.

For each district there might be set up a sub-committee with one joint executive town planning committee for the County, constituted of representatives of each of the rural districts, the Borough of Cambridge and the County Council, with such co-opted members as may be desired. Such sub-committee would consider matters from a local point of view and submit them to the main committee for co-ordination and incorporation in a final plan.

Whatever action may be taken, it is essential that all statutory schemes in the County are properly linked up with each other, and it is clearly impracticable to ensure this without the fullest co-operation between authorities and with any interested societies or organisations that may be working in the area to secure one or other of the many objects associated with a town planning scheme.

CONCLUSION

SUGGESTIONS AND RECOMMENDATIONS TO GOVERNMENT DEPARTMENTS, LOCAL AUTHORITIES AND OTHER BODIES

Much can be done under town planning powers, but the recommendations of the Regional Report and Plan cannot be achieved in the fullest sense except with the full co-operation and assistance of other interested bodies, and the support of public opinion.

The Regional Committee are recommended to take the initial step of bringing their conclusions to the notice of the authorities and bodies concerned in the fundamental services necessary to secure the ordered progress of development in the County.

The following recommendations are made:

(1) That the Government should be asked to assist in the promotion of satellite or garden villages under the powers contained in section 35 of the Town and Country Planning Act, 1932.

(2) That the desirability should be considered of setting up a Regional Water and Drainage Committee to assist the County Council in the promotion of schemes for:

(*a*) Village water supplies.

(*b*) Village sewerage and sewage disposal.

(3) That the Forestry Commission should be approached with a view to assisting in the planting of suitable areas with forest trees, in which the region is at present deficient.

(4) That the Ministry of Transport be asked to assist in securing the routes and in the ultimate construction of the roads and road improvements scheduled in the report, and that a definite policy should be adopted with regard to the location and design of road junctions and intersections.

(5) That the Roads Beautifying Association be invited to consider and advise on the planting and general beautification of the highway margins and the provision of wayside amenities.

(6) That continued support should be given to the Cambridge Preservation Society in their very valuable efforts to secure the retention of essential open spaces.

(7) That the possibility should be considered of obtaining assistance in regard to areas suitable for national parks, such as the Gog Magog Hills and the wide areas adjoining such ancient monuments as the Great Dykes, in all of which the National Trust, with the Antiquarian Society, could fittingly take an interest.

(8) That the County and Borough of Cambridge should consider the practicability of adopting a policy for securing wide open space reservations in all parts of the region, as opportunity arises.

(9) That the local authorities should keep in touch with the National Playing Fields Association in connection with the provision of playing fields and sports grounds in each centre of population.

(10) That the parish and rural district councils be asked to keep a close watch to protect the public interest with regard to footpaths, rights of way and village greens, in all matters relating to which the Commons, Open Spaces and Footpaths Preservation Society can give most valuable legal and practical advice.

(11) That the possibility of extending the present system of footpaths by the opening in suitable directions of cycle ways, free from ordinary vehicular traffic, should be considered in connection with the detailed planning of the area.

(12) That the River Great Ouse Catchment Board, under the Land Drainage Act of 1930, should be given every assistance in carrying out their powers

(*a*) To clear and deepen the main channels;

(*b*) To improve the pumping plant dealing with the drainage from subsidiary streams;

for the financing of which Government grants to the extent of 50 per cent. can be obtained under section 55 of the Land Drainage Act.

(13) That conferences should take place to consider the question of improving the navigable waterways and the provision of additional wharfage in view of the possible development of motor barge traffic, for which the region offers great potential facilities.

(14) That negotiations should be entered into with the Railway Companies, with a view to the gradual elimination of level crossings and the provision of improved stations to serve the proposed village centres.

(15) That the Electricity Undertakings serving the region should be asked to collaborate in securing the suitable location and provision of services in relation to town planning provisions.

(16) That the local authorities in the area, in conjunction with the County Council, should be recommended to take the necessary steps to adopt town planning powers.

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